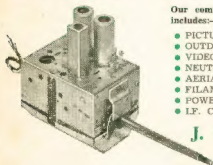


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3333 Kc.	5852.5 Kc.	6500 Kc.	7011.75 Kc.	7450 Kc.
3337 Kc.	5875 Kc.	6522.9 Kc.	7012 Kc.	7475 Kc.
3892 Kc.	5900 Kc.	6525 Kc.	7018 Kc.	7500 Kc.
3925 Kc.	5925 Kc.	6547.9 Kc.	7021.7 Kc.	7525 Kc.
4096 Kc.	5950 Kc.	6550 Kc.	7025 Kc.	7550 Kc.
4172 Kc.	5975 Kc.	6561.111 Kc.	7032 Kc.	7575 Kc.
4205 Kc.	6000 Kc.	6575 Kc.	7032.6 Kc.	7600 Kc.
4285 Kc.	6025 Kc.	6600 Kc.	7050 Kc.	7625 Kc.
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## EDITORIAL



### 50 Mc. BAND AND THE I.G.Y.

The world wide study during the I.G.Y. has intensified interest in the 50-60 Mc. region.

Throughout South America are scattered a number of high power transmitting and receiving stations dedicated to the task of studying forward scatter and other propagation phenomena at these frequencies.

Australian Amateurs will be particularly interested to learn that facts and figures so far disclosed support the evidence collected by members of the W.I.A. and submitted by your Executive to the A.B.C.B. and Amateur Administration during discussions relative to transfer of Amateurs to make room for TV Channels. The problem of long distance interference at these frequencies was particularly stressed.

It is fitting now that an opportunity has come for Amateurs to take

part in this aspect of I.G.Y. study on at least portion of the old 50-54 Mc. band where international activity is greatest.

The continuation of the studies in conjunction with special facilities available during I.G.Y. could lead to great advancement in our knowledge of propagation at v.h.f.

Another event in which Australian Amateurs have cause to be jubilant at this moment is the success of our approach to the Philippines Government, through the Australian Minister of External Affairs, to permit communication between the Amateurs of our two countries.

It is this freedom of exchange which has always characterised the spirit of Amateur Radio and overcome all obstacles with one object in mind. International Good, Year in and year out.

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## THE CONTENTS

90° R.F. Phase Shift Networks, Part Three .....	2	1957 "CQ" World-Wide DX Contest Rules .....	10
E.H.T. Without Tears .....	5	S.w.I. Notes .....	12
Radio—31 Years Ago .....	6	DX Activity by VK2QL .....	13
Antenna Couplers for 50 and 144 Mc. ....	7	Prediction Chart for Oct., '57 .....	13
Those Equalising Pulses .....	9	Fifty-Six Megacycles and Above 14 YL Corner .....	15
Valve Data—6SN7GTA .....	9	C.D.E.N. News .....	15
E.Y.M.A.—Eight-Hundred Years Munich Award and Contest .....	9	Federal, QSL, and Divisional Notes .....	17

# 90° R.F. Phase Shift Networks

## PART THREE

BY N. L. SOUTHWELL,\* VK2ZF

### NETWORK IMPEDANCE

Let us look at the subject of network impedance. We wish to obtain as much voltage output from the network as possible, for a given power input.

The higher the network impedance the more output volts we obtain for any given input level, but we must compromise between output voltage and network impedance. Admittedly the operating power level of the network directly affects the output voltage obtainable, but the aspect of power level was dealt with earlier in detail.

Study the chart of component values with Fig. 1. Note how, as the frequency of operation is raised, and the network impedance is kept constant, the values of the capacities required in the network drop. A 300 ohm network at 3.5 Mc. requires condensers of 147 pF., at 14.2 Mc. this has been reduced to 35 pF., and at 28.4 Mc. would be halved to 17.5 pF.

The inductance required also has decreased from 13.33  $\mu$ H. at 3.5 Mc. to 3.37  $\mu$ H. at 14.2 Mc., and would be 1.68  $\mu$ H. at 28.4 Mc.

The stray capacity of circuit wiring plus the input capacity of balanced modulators—especially multi-element tube types, associated with the r.f. p.a.n. could easily equal, and in some cases exceed, the figure of 17.5 pF. quoted above.

In regard to two branch networks of Fig. 1 such a stray capacity would fall across the inductive element of one branch and add to the capacitive element of the other branch, hopelessly throwing the phase shift well away from 90°. In an extreme case the inductance could even be resonated by the stray capacity, with likewise disastrous results to the phase shift.

So we must limit the network impedance to some value where the effect of stray circuit reactances cause no trouble at the operating frequency, or frequencies.

The pi network of Fig. 5 avoids the stray capacity trouble to a large degree, as this capacity, as previously explained, falls across the input and output capacitances of the network and can be then counted as part of them. Consequently for any given value of network impedance, a pi network can be operated satisfactorily at a higher frequency than a two branch type of network.

An attempt must be made to estimate the stray circuit inductance and capacity, especially the latter, when one is deciding what r.f. p.s.n. to use in any particular piece of equipment. The effect of such strays upon the operation of any contemplated network should then be considered at the highest operating frequency at which a.s.b. energy is to be generated. If the network will perform well at that frequency, the effect of the circuit strays at lower frequencies can be ignored.

It is possible in some cases to balance out an unwanted capacitive reactance by inserting an inductive re-

actance of the same magnitude into the circuit at a suitable point, and vice versa in respect of undesired inductive reactance.

However, this method of approach to the stray reactance problem is not to be recommended, as the resulting circuit can quite easily assume the proportions of a monster that no one can tame, due to so many introduced variables. Also, balancing out reactance as described is only good for one frequency, further complicating matters.

Whilst on the subject of stray reactances, keep the two network output leads well separated.

Stray capacity will be the main problem as circuit inductance can be kept to a minimum by the use of heavy gauge wire and short leads. This should be done in any case, as floppy loose wiring may cause the phase shift to be unstable.

The circuits shown in Figs. 1, 2, 3, 7 and 8 should always be wired into the circuit so that no d.c. from the balanced modulators flows through them. If this condition is not observed the operating conditions of the balanced modulators will not be similar, also they will be coupled together by a d.c. circuit through the network, which produces undesirable results.

impedance source if inefficient operation can be tolerated in the driver stage.

It is appreciated that when dealing with components operating at the Amateur band frequencies the average Amateur will not know the exact value of his components. Should resistors used be plus or minus some percentage of the rated value, it will not matter greatly in the case of the two branch networks as the adjustment procedure provides for adjusting the associated series reactances to a value equal to that of the resistor wired with them. With all the types of networks, values of components specified are "centre design values" as calculated, and if the actual components used (with the exception of terminating resistors, which are critical) are within a reasonable percentage of this figure, the networks will be found to "phase up" without trouble.

### USING THE REACTANCE CHART

The chart in Fig. 9 will enable the derivation of the approximate value of components for networks at various frequencies having impedances other than those given in the chart in Fig. 1.

The chart plots the inductive and capacitive reactance for components

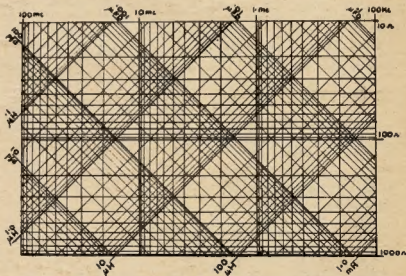


Fig. 9.—Inductive and Capacitive Reactance v. Frequency and Resistance.

The circuits shown in Figs. 2, 4, and 6 can be operated directly in the d.c. return path for the balanced modulators as in these networks the d.c. return paths for each output is completely separate, and of equal r.f. impedance and d.c. resistance.

Circuits of networks in Figs. 1, 2, 3, 5, 6, 7, and 8 should, as a general rule, be fed from a source having a low r.f. impedance and preferably low d.c. resistance, although it is possible to feed the above circuits from a high

between the frequency limits of 100 Kc. and 100 Mc., and resistance limits of 10 ohms and 1,000 ohms.

To use the chart enter it along the vertical line for the frequency of network operation, proceed down until it intersects the horizontal line which gives the value of network impedance required. From the junction of these two lines the values of the required inductance and capacity can be read off, by inspection and interpolation, on the inductance value lines which slope

\* 90 Dutton Street, Yagooma, N.S.W.



upward from left to right and the capacity value lines which slope upward from right to left.

### ADJUSTMENT

The adjustment of r.f. phase shift networks involves dealing with the line up procedure of the equipment in which they are used, and will be covered here in a general form.

In dealing with s.s.b. transmitter exciters, it will be assumed that the audio p.s.n. has been previously adjusted to approximately the correct conditions and that the carrier balance controls have been set for minimum carrier leakage.

An audio frequency oscillator having a good waveform output is required. This oscillator should be set to approximately 1250 cycles per second and the output waveform inspected on a c.r.o. If the result is not a good sine wave, the oscillator should be overhauled until it is, as it will be useless to proceed otherwise.

The output of the exciter should be suitably loaded and the c.r.o. also coupled to the output so that the r.f. appears on the vertical plates. The oscilloscope sweep circuit is set to about 250 cycles per second and is applied to the horizontal plates.

With all equipment operating and lined up to resonance, the audio oscillator is connected to the exciter audio input and the gain control on the exciter advanced; care should be taken not to overload any circuit by either injecting too much signal from the oscillator or by turning the exciter gain up too high.

Viewing the c.r.o. pattern you will probably observe something like Fig. 10. The job in hand is to minimise the ragged nipples on the edge of the pattern until it looks like Fig. 12.

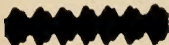


Fig. 10.—Carrier not fully suppressed, also some unwanted sideband present.

A number of things can cause roughening of the edge of the pattern. They are:

- (1) Audio phase shift not perfect,
- (2) R.f. phase shift not perfect,
- (3) Carrier leakage through the exciter to its output,
- (4) Distortion in the output of the audio oscillator,
- (5) Distortion in the audio sections of the exciter,
- (6) Distortion in the r.f. section of the exciter after the balanced modulators.

We will assume we have a minimum of trouble from (1) and (6) above. In regard to (3), a small amount of carrier usually gets through; this has to be borne in mind and when you are endeavouring to obtain the best performance possible from the equipment, the presence of traces of residual carrier must be remembered. The presence of residual carrier is easy to pick as it produces ripples on the pattern at half the frequency as those produced by the sideband energy.

Adjustment of the carrier balance controls, extra shielding of the various

stages, or an altered layout are the ways in which this carrier can be minimised.

To minimise the unwanted sideband the r.f. p.s.n. controls and the audio amplitude balance controls are the ones to be adjusted.

In respect of distortion in the audio oscillator's output listed as (4) above, causing a roughening of the edges of the c.r.o. pattern, a very "sticky" situation arises, should the oscillator have much third harmonic distortion in its output.

This third harmonic distortion energy falls at a frequency which is twice the audio oscillator output frequency away from the unwanted sideband. Unfortunately the undesired sideband is separated from the wanted sideband by the same amount but in the opposite direction—frequency wise.



Fig. 11.—Carrier suppressed, still some unwanted sideband.

The c.r.o. will show both unwanted sideband and third harmonic of the audio oscillator up as identical signals, and it will be impossible to tell them apart as they will appear as one signal.

Under the above conditions it is more than likely that you will try and introduce, quite unwittingly, a sufficient amount of undesired sideband energy to cancel out the third harmonic of the audio oscillator. The remedy is to make sure the audio oscillator has a good sine wave output.

The reason for keeping the level of the tone fed into the exciter at a level where no overloading of any stage in the circuit can take place will also be appreciated.

Figures 10, 11 and 12 show representative c.r.o. patterns of different conditions you will encounter when lining up an exciter.

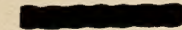


Fig. 12.—Both carrier and unwanted sideband suppressed.

Fig. 13, gives a table of the suppression values for various amounts of ripple in the c.r.o. pattern due solely to unwanted sideband.

The line-up method just described using a c.r.o. has its limitations, as can be seen by inspection of the table in Fig. 13. The best suppression that can be measured on a c.r.o. is between 30 and 40 db.

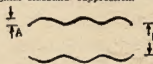
Another way of checking the output is by means of a receiver that has a single sideband adaptor connected to it. Both methods can be used together, or either alone. For routine line-ups after the initial adjustments have been ascertained, the writer prefers to use the receiver, as with practice it is quicker, more convenient, and accurate. In fact if you transmit much residual carrier the use of a receiver may be the most accurate means for you to use.

The receiver is set up with its input shorted and r.f. gain turned well

back, so that with no modulation you can tune in the signal radiated as residual carrier around S4 or 5, zero beat this signal exactly. Switch the adaptor to receive the unwanted sideband, apply tone input to the exciter as described previously and adjust the exciter controls until a minimum signal emanates from the speaker. Do the adjustments at a fairly low room volume, generally the lower the better, as the ear is more sensitive to changes in level at low volume. When you are satisfied throw the adaptor sideband selector switch to the opposite sideband and observe the difference in strength.

Now throw the sideband selector switch on the exciter so that the opposite sideband is radiated. Check the relative strengths of the two sidebands on the receiver. The ratio of suppression should be about the same as before.

It is quite possible when you throw the exciter s.b. selector switch that you may find the suppression not as good as that for the sideband you have lined it up on. In this case a small adjustment of the exciter r.f. p.s.n. controls and the audio balance controls are called for, possibly you will only need to adjust the r.f. p.s.n. to regain your original sideband suppression.



Ratio A-B	Sideband Suppression
1:5	14 db.
1:10	20 db.
1:15	24 db.
1:20	26 db.
1:30	30 db.
1:40	32 db.
1:50	34 db.
1:70	37 db.
1:100	40 db.

Fig. 13.—Deriving sideband suppression from c.r.o. patterns.

Inspect the controls to see how much you have had to move them and set them half way between the two settings required for the different sidebands.

The checking of both sidebands radiated by the exciter is a necessity as under some conditions it is possible on one sideband to obtain good suppression from a single tone when the r.f. and a.f. phase shifts are not 90°. Switching sidebands proves whether your adjustments are satisfactory or not.

Under conditions of good adjustment it should be possible to barely hear the unwanted sideband on the speaker when the signal from the wanted sideband is set to give fair room level.

### ADJUSTMENT OF RECEIVING TYPE S.S.B. ADAPTORS

The adjustment of r.f. p.s.n.'s in receiving type s.s.b. adaptors will also be given in brief outline as details will vary a little with individual equipment.

(Continued on Page 4)

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TYPE "40"  
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# E.H.T. Without Tears

BY M. RILEY,\* A.S.T.C., VK2ARZ

**I**N spite of the fact that small modulation monitors have been described in "A.R." and other magazines with some regularity over a period of nearly thirty years, a few hours listening on our phone bands will reveal that the simple c.r.o. is still not being used to the extent it should.

The cold hard facts are that although plate meters seem to be used extensively to monitor, in a rough fashion, the degree of modulation applied to the majority of transmitters, this indication of average modulation does not tell us very much about what is happening to the carrier under peak modulation conditions.

Failure to recognise this fact leads to reports of overmodulation and splatter. The only satisfactory way to overcome these difficulties lies in the construction and use of a simple c.r.o. One Sydney operator will not consider phone operation without his c.r.o. even when the rig involved is only a mod. osc. (fortunately my relegated to its correct place). He claims that he felt "completely lost" when the c.r.o. was out of action for a short time.

The writer has attempted to analyse the reasons which have prevented the simple c.r.o. from assuming a place in the Ham shack similar to that occupied by the multimeter and g.d.o. In previous years c.r.t.s. were expensive items. Recently, however, numerous types have appeared at prices ranging from 10 to 40 shillings. If the life of one of these is considered in terms of your operating time, it can be seen that two c.r.t.s. at the most will outlast the average Ham and that the price of two tubes spread over say 30 years removes the consideration of c.r.t. cost.

The average Ham should experience little difficulty in wiring up the four potentiometers and half dozen resistors necessary to build a small c.r.o.

Assuming the use of a "negative e.h.t." supply all the voltages required for the operation of such a unit, with the exception of the e.h.t. supply, may be obtained from the transmitter itself.

It appears likely that what we really need is some form of "black box" which we can install in our equipment. This "black box" must place very little load on the power supply operating it and must produce sufficient e.h.t. to operate any c.r.t. likely to be found in the average junk box.

If you have been waiting for such a "black box" read on.

If you are still trying to find an excuse for the lack of a simple c.r.o. type modulation monitor in your shack, stop here and turn to the YL corner.

The unit to be described places a very small load on any one of the transformers used to power your rig.

If you wish to build the c.r.o. into the modulator (its logical position) then use the speech amp. supply for a small c.r.t. or the modulator supply for a large tube.

The output voltage ( $V_o$ ) developed by the "black box" is a function of the transformer voltage. Typical figures are as follows:

Transformer Voltage	Loaded E.H.T. Voltage
220v. r.m.s. a side ...	-ve 900 v.d.c.
350v. r.m.s. a side ...	-ve 1500 v.d.c.

No special filament windings are needed to operate the "black box" supply.

The "magic" is supplied by the use of special selenium rectifiers.

At this stage you may be prepared to throw up your hands in desperation! If so, turn to the DX pages.

## USE OF SELENIUM RECTIFIERS

Perhaps you have had some unfortunate experience with selenium rectifiers. Most failures of that nature are caused through ignorance of the factors involved in the operation of these rectifiers so that the manufacturers' ratings have been exceeded.

Once a few simple principles have been established in your thoughts, you will find yourself in a position to judge the suitability of any type you may have on hand for a particular

should appear across each plate in the non-conducting or "reverse" direction. This rating determines the voltage which may be applied to the stack. A value of 14 to 18 volts r.m.s. is normal for rectifier plates manufactured in Australia. In the U.S.A. a figure of 65v. maximum peak inverse voltage is quoted for some domestic receiver applications. This explains those miniature rectifiers so often seen in "QST" performing an apparently impossible task.

If a rectifier is feeding into a capacitive filter a maximum input voltage of 9v. r.m.s. per plate may be used in a half-wave circuit, 9v. r.m.s. per plate a side in "push-pull", or 18v. r.m.s. per plate in "bridge" rectification.

A selenium rectifier is also very sensitive to breakdown induced by excessive temperature rise. The best we can do here is to see that the other ratings are not exceeded and that the rectifier is well ventilated.

The manufacturers recommend that the normal maximum working temperature should not exceed 65°C. (149°F.) although a value of 85°C. (185°F.) can be withstood with safety for some hours<sup>(1)</sup>.

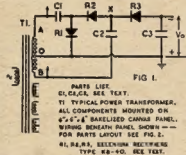
## CONSTRUCTION OF E.H.T. SUPPLY

To proceed with the construction of the "black box" e.h.t. supply you will need:

- Three selenium rectifiers type K8-40. These are rated at 900v. r.m.s. inverse and 5 Ma. maximum forward current. They are obtainable ex stock from the Sydney manufacturers (S.T.C., Botany Road, Alexandria, Sydney, price 10/8 plus tax).
- One paper capacitor 0.5  $\mu$ F. or greater, 400v. or more d.c.v.v. (C1).
- Two high voltage capacitors 0.1  $\mu$ F. or greater, voltage rating 1kv. or greater (C2 and C3).

All components are mounted on a piece of bakelised canvas in the unit constructed by the writer. The actual

(Continued on Page 6)



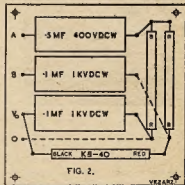
job. Before describing the "black box" a few words on selenium rectifiers in general will not be out of place.

Basically, they have two important ratings; maximum rated forward current and maximum inverse voltage.

The first rating determines the load current which the rectifier will deliver and is determined by the area of active conducting material on each plate and the spacing between plates in a rectifier stack. A typical rating is 50 to 60 Ma./sq. cm. of active material. To determine the rating of a metal rectifier plate, measure the outside and inside diameter of the conducting material on the plate (assuming circular plates with "centre contact" mounting), calculate the area in sq. cm. and multiply by 50 to obtain the current rating in milliamps.

If the stack is used in "push-pull" or bridge connections, the rating calculated will be correct. If half-wave rectification is used, this figure must be halved to give the correct rating.

The rating of maximum inverse voltage is the maximum voltage which



(1) "The Manufacture, Construction and Application of S.T.C. Selenium Rectifiers" by R. F. Haren, A.S.T.C.

# RADIO—31 YEARS AGO

BY ERIC TREBILCOCK, BERS195

[31 years ago Eric Trebilcock, BERS-195, first made his entry into the field of Amateur Radio interest. He recently re-read some radio magazines which were in existence at that time and from same extracted some information which will be of interest to present-day Hams and S.w.l.'s—31 years is a long time ago, probably before half of our VK Hams were born!—Ed.]

This information refers to the 1926-1927 era. In those years:—

There were approx. 400 licensed Amateur Stations in VK, and 100 in ZL.

Of those licensed in 1926, 96 still hold the same call sign in VK.

Only two call signs were listed under Papua-New Guinea (VK4CP and VK-4CR).

There were 21 broadcast stations—eight "A" class and 13 "B" class.

A 200-page radio magazine cost 1/- in those days!

There were 180,000 broadcast listeners in existence in VK—of which total 90,000 were in VK3 and 50,000 in VK2.

A broadcast listeners' licence cost varied between 17/6 and 27/6. A dealers' licence cost £2 to £3, and a licence for a receiver in a hotel cost £7/10/0 to £10.

A crystal set was retailed at £4.

A 2-tube b.c. receiver cost £15, 4-tube £28, 6 tubes £45 to £120; and

a portable job cost £75 believe it or not!

In those days 500 watts was referred to as low power!

A train toured N.S.W. carrying a fully equipped b.c. station, the aerial for which was 60 ft. long and mounted on two masts 40 ft. high above the carriage roofs!

There were 23 Australian based warships, all of which had call signs commencing with G.

The main DX band for Amateurs was 32 metres, and the prefix was A (later OA—then VK still later).

S.w.l.'s and b.c. listeners alike used to derive great pleasure from week-end music and speech transmissions by Amateur Stations around 200 metres.

At night time it was common place for Interstate reception to take place regularly—on this "Amateur" band.

Several of the big DX men 30 years ago are still to be heard chasing DX—on the other hand, some of our present-day chief experiments were in the front ranks of experimenters 30 years ago.

QSL cards were no less popular then than they are now. (Most b.c. stations used to seek DX reports too, for which QSL cards were offered.)

"Cage" type aerials were all the rage with Amateurs and b.c. stations—beams were virtually unknown.

In the intervening 31 years, BERS195 has made 182,000 log entries, mailed 15,000 reports, and received 9,000 QSL cards.

# E.H.T. WITHOUT TUBES

(Continued from Page 5)

physical construction does not matter, but the method suggested has proven simple, rugged and reliable. Pigtail on each component are soldered to lugs held on the insulating material by tubular rivets (see Fig. 2).

## THEORY OF OPERATION

To understand the operation of the circuit (Fig. 1) assume that point A becomes positive with respect to points O and B.

Rectifier R1 will conduct and C1 will charge to the peak value of the voltage AO. (C1 must be rated to withstand this voltage of  $1.4 \times AO$  r.m.s. voltage. For a 220 volt aside transformer, C1 should be rated to  $220 \times 1.4 = 310v$ . d.c.w.)

On the next half-cycle R2 will conduct and due to the charge on C1, C2 will be charged to a potential of  $3 \times 1.4 \times AO$  volts peak.

The potential of point B will vary from 1.4 AO positive to 1.4 AO negative with respect to the point O. The polarity of R3 is such that although point X will tend to vary from  $4 \times 1.4 \times AO$  to  $2 \times 1.4 \times AO$  volts, C3 will be maintained at  $4 \times 1.4 \times AO$  volts.

In the case of a 220 volt aside transformer this means that C3 will be charged to nearly 1,100 volts unloaded. When the e.h.t. bleed is added, together with the a.r.t. load, this potential will drop to about 900v.

The theory of operation is included so that intending constructors can check the rating of any components which may be pressed into service. Before you attempt to use any capacitor in the "black box" see that its rating will cover the voltages likely to be experienced. If possible give them a "leakage" test on a neon-type indicator or check them with a megger.

Having provided yourself with a compact, simple and reliable source of e.h.t. for your modulation monitor, any standard Amateur manual will provide you with the circuitry of a simple c.r.o. The one described in "The Radio Handbook", eleventh edition, is the one used by the Sydney Amateur mentioned. The c.r.t. will require a filament winding isolated from all other tubes in the equipment. One of the normal windings on the power transformer can be used and although the insulation is probably not designed to withstand several hundred volts to frame, equipment constructed this way is known to be operating satisfactorily. If you have any strong feelings on the subject it is not difficult to wind up a one-to-one transformer (having adequate insulation to withstand from a filament winding on) TL.

If the c.r.t. has a four volt or two point five volt filament this procedure is recommended.

And now that is the story of the "black box". The writer wishes good reports and more effective modulation to anyone prepared to try this not well known approach to e.h.t. generation.

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the . . .

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AUSTRALIAN RADIO AMATEUR

CALL  
BOOK

JUNE 1957



PRICE 5/-



# Antenna Couplers for 50 and 144 Mc.\*

## SHIELDED COUPLERS FOR THE V.H.F. STATION

**T**HOUGH antenna couplers are quite general on lower frequencies, they are still something of a rarity in v.h.f. stations. Why bother with a combination of coils and capacitors, when a simple balun of coaxial line will serve the same purpose?

There's nothing wrong with the balun approach, provided we recognise its limitations. The balun will convert from co-ax to balanced lines, and step up the impedance from 50 to 200, or 75 to 300 ohms, in the process, but it will do no more. Transmission line of 200 ohms impedance is little used, and the common polyethylene-insulated 300 ohm lines leave quite a bit to be desired, particularly in wet weather. Probably the best transmission line for most v.h.f. installations is the open-wire type, with impedance ranging from 400 to 600 ohms. A balun will not do the job properly with this sort of line.

In addition, few v.h.f. antenna systems actually present a purely-resistive load of 300 ohms at the transmitter end. Measurement of impedance, at the end of the line or at the antenna, may show values well away from those that can be matched with simple co-axial baluns. A moderate mismatch between the antenna and the transmission line

● Unless only a short transmission line is needed for the run from transmitter to array, losses may run rather high if co-ax is used on v.h.f. antenna systems. Yet modern transmitter design and the need for i.v.l. protection demand the use of co-axial output coupling. The best combination for most v.h.f. installations is some form of balanced transmission line for the main run, and an antenna coupler to handle the conversion from the balanced line to the co-axial transmitter connection. Here are shielded couplers to do the job on 50 and 144 Mc. (Slight modifications will be necessary for 56 Mc. band operation in Australia.—Ed.)

something less than a red-hot v.h.f. antenna, but the couplers made it possible to load properly, and the antenna didn't do too badly. With another coupler of similar circuitry,<sup>1</sup> the same doubt also serves well enough for our occasional excursions on all the "d.c. bands" from 30 to 3.5 Mc.

### CONSTRUCTION

Antenna couplers for lower bands are usually constructed with their tuned circuits out in the open. Shielding is desirable, but the large coils needed for those frequencies would require quite large enclosures. Metal in the field of a coil reduces its "Q" so we should allow for free space all around the coil for at least half the diameter. On 50 or 144 Mc. we can satisfy this requirement and still build the antenna coupler in a compact package.

Our couplers are housed in aluminium utility boxes 3 x 4 x 6 inches in size. These are the two-piece variety, and all the components are mounted on one of the pieces. With only slight modification a standard chassis could be used, the shielding being completed by adding a bottom cover.

The two units are identical in external appearance, and similar components are used. The main tuning capacitor, C2, is fastened to the front wall 1½ inches in from the left side. The series capacitor, C1, and the co-axial fitting, J1, are 1½ inches up from the bottom of the rear wall, 1½ and 2½ inches, respectively, from the left edge, as viewed from the back. A standard crystal socket, J2, is the terminal for the balanced line. It is mounted on the top, one inch from the edge.

Details of the interior arrangement should be obvious from the photographs. The 50 Mc. coils are cut from commercially available stock inductors, though they can, of course, be made by

hand. The coupling winding, L1, is inserted inside the tuned circuit. The polyethylene strips on which the coils are wound keep the two coils from shorting to each other, so no mechanical support other than that provided by the leads is needed. The leads to L1 are brought out between the turns of L2, and are insulated from them by two sleeves of spaghetti, one inside the other. Do not use the soft vinyl type of sleeving, as it will melt too readily if, through an accident to the antenna system, either coil should run warm.

In the 144 Mc. unit the positions of the coils are reversed, with the tuned circuit, L2, at the centre, and the coupling coil on the outside.

The components are designed to stand up under fairly high power. Smaller parts could be used if operation is to be at the 100 watt level or lower, but there would be no great saving in cost. Similar tuning capacitors are used in both couplers, but some of the plates are removed from the one in the 144 Mc. unit. This provides easier tuning, though it has no great effect on the minimum capacitance, and is therefore merely a matter of convenience. The capacitor may be left in its original condition, if you want to save it that way for some other eventual use.

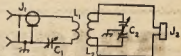


Fig. 1.—Circuit and parts information for the v.h.f. antenna couplers.

C1—100 pF. variable for 50 Mc., 30 pF. for 144 Mc.

C2—35 pF. per section split-stator variable, 0.27 inch spacing. Reduce to 4 stator and 4 rotor plates in each section in 144 Mc. coupler for easier tuning; see text.

J1—Co-axial fitting, female.

J2—Crystal socket.

L1—50 Mc.: 4 turns No. 18 tinned, 1 inch diam., ¼ inch spacing.

144 Mc.: 3 turns No. 14 enamel, 1 inch diam., ¼ inch spacing. Slip over L1 before mounting.

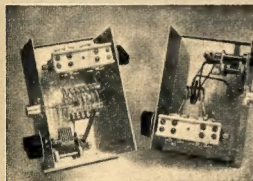
L2—50 Mc.: 7 turns No. 14 tinned, 1½ inch diam., ¼ inch spacing. Tap 1½ turns from each end.

144 Mc.: 5 turns No. 12 tinned, ½ inch diam., 1 inch long. Tap 1½ turns from each end.

### ADJUSTMENT

There is only one way to adjust an antenna coupler properly. That is by means of some form of standing-wave bridge. Anything else is guess-work. You can come up with an adjustment that will work, but you will never know if it is the optimum, except by checking the standing-wave ratio on the co-axial line from the transmitter to the coupler.

If you have a power-indicating bridge it will be necessary to drop the power level to that recommended for the bridge in question. Adjustment of the coupler is the same for either, however, and once it is set correctly it may then be used for that antenna sys-



will do very little harm, provided that some provision is made for tuning the line, and for coupling to it properly. That's where our antenna couplers come in. With them you can make almost any antenna system that is fed with a balanced line take power on 50 and 144 Mc.—and that can be highly useful in an emergency.

The writer recently made use of the two antenna couplers described below in this way. Some changes in our arrays for 50 and 144 Mc. had been started, and then were held up by a stretch of the nasty weather that New England can serve up in March. For a week or so we got in some tolerable operating on 6 and 2 metres by using a 68-foot doublet that is fed with about 100 feet of open-wire line. It was

\* Reprinted from "QST," July, 1956.

1 See the Transmission Lines chapter of any recent edition of the "Handbook" for details.

tem at any power level, and with any length of co-ax, and any transmitter.

Set the bridge to read forward power, and with the antenna connected to J2 adjust the antenna coupler capacitors and the transmitter tuning roughly for maximum reading. Now set the bridge to read reflected power, and adjust the antenna coupler capacitors, first one and then the other, until minimum reflected power is achieved. Unless the line input impedance is very highly reactive it should be possible to get the reflected power reading down to zero, or very close to it. As far as the antenna coupler is concerned, the job is now complete, for the antenna presently in use. Adjustment from here on, for maximum transfer of power from the transmitter, is done entirely at the transmitter. If you can't get the transmitter to load properly now, you need some modification of its coupling system. If the bridge shows zero reflected power, the co-ax link now represents a purely resistive load for the transmitter. Leave it that way, and go to the next part of the rig!

The couplers were checked in the lab. with resistive loads from 100 to 1600 ohms, over which range it was possible to show a 1:1 s.w.r. in the co-ax line and load the transmitters effectively. This simulates a mismatch of up to 5.3 to 1 for 300 ohm lines, or 4.5 to 1 for 450 ohm lines. It is unlikely that a v.h.f. array built to any standard design will have an s.w.r. of anything like this order. Antennae intended for use on the other bands may present higher or lower values, but a

slight juggling of the line length should make it possible to load them effectively with the couplers shown.

—E. P. T.

## PHASE SHIFT NETWORKS

(Continued from Page 3)

With the main receiver set on manual volume control and with the r.f. gain turned well back, tune in an a.m. phone signal. Listening to the signal when tuned to zero beat it should be clear and undistorted at the output of the adaptor.

Detune the receiver to one side of the station until a heterodyne of 1,000-1,500 c.p.s. is obtained with the received carrier. Operate the adaptor's sideband selector switch and observe which position gives the weakest received signal and leave it in that position.

Adjust the r.f. p.a.n. and the audio balance control for that particular sideband until the received signal is at a minimum. The receiver should now be detuned to the opposite side of the a.m. carrier, to obtain approximately the

same beat note, and the adaptor's sideband selector switch is thrown to the other sideband position.

The audio balance control for that sideband and the r.f. p.s.n. controls are adjusted until the received signal in the speaker is again at a minimum.

Switch alternately between the two sideband positions on the adaptor, tuning the receiver to the opposite side of the received signal each time. After two or three adjustments to each sideband position the job will be complete.

As in the case of the s.a.b. exciter, it may be necessary to strike a mean position for the final settings of the r.f. p.s.n. controls.

Now you will find as you tune across the band that the carriers of a.m. stations can only be heterodyned on one side of zero beat, likewise c.w. signals. Tune in two a.m. stations QRMing each other and observe how selecting the appropriate sideband either eliminates the QRM or renders it of no nuisance value. In the case where a station is hard to read on either sideband try reading it on a normal a.m. receiver and you will appreciate what a properly lined up adaptor is capable of doing.

This article has covered r.f. p.s.n.s. from almost all angles, practical and theoretical, the types covered are thoroughly representative of those in use by the s.a.b. fraternity. Other phase shift networks may be encountered occasionally, as other circuits do exist, but this article should meet the requirements of almost all the readers interested in these circuits.

## CHANGE OF ADDRESS

W.L.A. members are requested to promptly notify any change of address to their Divisional Secretary, not direct to "Amateur Radio."

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## SPECIAL

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for general communication frequencies in the range 3 to 14 Mc. Higher frequencies can be supplied.

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# THOSE EQUALISING PULSES

Maybe you have built your own t.v. receiver, or maybe you've only a theoretical and academic interest in its circuitry, but, whichever way your interest lies, no doubt you've wondered about those pulses! Let us lift you out of the confusion caused by other published explanations of this facet of t.v. by referring you to a series entitled "Television Made Easy," published in "Amateur Radio" under the names of Ken Wall and John Jarman, in particular Part VI, February, 1952, from which we quote:

"Now these equalising pulses; what are they for? Well, we've learnt that each picture is scanned in two 'fields', each of 31 1/2 lines. The first field is terminated in the middle of a line, and the second at the end of a line.

"Now, supposing that normal horizontal synchron. pulses were used right up to commencement of vertical synchron. pulses. Consider the interval between the last horizontal and the first vertical pulses. At the end of the first field, it would be shorter than at the end of the second field. The small charge left on the integrator, by this last pulse, has therefore less time to escape so that at the end of the first field, charge on integrator reaches its peak faster.

"In every picture, therefore, the first field would be 'cut short', so that interlacing would not be correct. The lines of the second field would tend to 'overlap' those of the first, instead of falling between them.

"To prevent this, we substitute some of the horizontal synchron. pulses, both before and after each set of vertical synchron. pulses, with narrow pulses, at twice line frequency, to equalise conditions for each type of field."

Amazing, isn't it, that such a lucid explanation has lain dormant for five and a half years? . . .

## VALVE DATA

### 6SN7GTA

#### MEDIUM-MU TWIN TRIODE

Base: Octal.

Socket connections:

- Pin 1—Grid of Unit No. 2.
- Pin 2—Plate of Unit No. 2.
- Pin 3—Cathode of Unit No. 2.
- Pin 4—Grid of Unit No. 1.
- Pin 5—Plate of Unit No. 1.
- Pin 6—Cathode of Unit No. 1.
- Pin 7—Heater.
- Pin 8—Heater.

#### Electrical Data

Heater voltage . . . . . 6.3 volts  
Heater current . . . . . 0.6 amp.

#### CLASS A1 AMPLIFIER

Values are for each unit.

#### Maximum Ratings:

Plate voltage . . . . . 450 max. volts  
Cathode current . . . . . 20 max. Ma.  
Plate dissipation . . . . .

For either plate . . . . . 5 max. watts

For both plates with . . . . . 7.5 max. watts

Peak heater-cathode . . . . .

voltage . . . . .

Heater negative with . . . . .

respect to cathode . . . . . 200 max. volts

Heater positive with . . . . .

respect to cathode . . . . . 200\*max. volts

\*The d.c. component must not exceed 100 volts.

#### Characteristics:

Plate voltage	250 volts
Grid voltage	-3 volts
Amplification factor	20
Plate resistance	7700 ohms
Transconductance	2800 $\mu$ mhos
Plate current	9 Ma.
Plate current for grid voltage of -12.5 volts	1.3 Ma.
Grid bias voltage (approx.) for plate current of 10 $\mu$ A	-18 volts

#### Maximum Circuit Value:

Grid-circuit resistance:  
For fixed-bias operation . . . . . 1.0 max. megohm

## E.Y.M.A.—EIGHT-HUNDRED YEARS MUNICH AWARD AND CONTEST

On the occasion of the Munich 800-Year Anniversary Festival, the Munich section of the D.A.R.C. arranges a contest from 1st October, 1957, to 31st December, 1957, to promote a close contact with all Amateurs of the world.

#### CONTEST RULES

As many contacts as possible should be established with Munich stations. Mode of operation may be phone or c.w., or both. Minimum report for phone contacts must be QZ/83, for c.w. contacts RST333.

Each contact with a single Munich station is counted as one point per band. The sum of points thus gained is multiplied by the number of bands used during the contest, i.e. the highest multiplier is "3". Radio Amateurs outside of Europe may count two points per contact established on the 3.5 Mc. band.

Munich stations may be recognized during the contest by means of the identifier "C 13", i.e. internal German zone C 13—area of Munich; which will be added to the call sign. Example: DJ2F/C 13. Stations with call signs prefixed DL, DLA, DLB and DJ are not recognised as German stations for the purpose of this contest.

The Amateur with the highest scores from each continent will be awarded expenses for a 3-day stay in Munich on the occasion of the Munich 800 Year Anniversary Festival in July, 1958. During the 3-day stay the winner will be awarded with his medal and his certificate. Second and third place winners from each continent and first place winner from each country, according to the official DX C.C. countries list will also receive a certificate.

Immediately after the end of the contest each participant will receive a special QSL card. This QSL card will be a reproduction of the original certificate with an indication of officially checked scores. In addition, all Amateur stations may obtain a certificate for establishing a certain number of contacts with Munich stations. For a considerable Amateurs in zones 29, 30, and Amateurs in zones 13 and

39, if located in the Antarctic, must contact 10 different Munich stations. Participants in the contest will automatically receive the certificate if they fulfil the requirements.

QSL cards for Munich Amateurs must be addressed as follows: O.V. München, Post Office Box 4, Munich 40, Germany. Only QSL cards showing all necessary data will be counted.

Contest contacts will be acknowledged only if the contestant submits his cards according to the rules given above. The deadline mailing date (official post mark date) for QSL cards for this contest and the certificate is 31st January, 1958, and cards arriving after 31st March, 1958, cannot be acknowledged.

## D.X.C.C. LISTING

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

### PHONE

Call	Car. Cnt.	No. times	Call	Car. Cnt.	No. times
VK4FJ	21	202	VK4JD	1	153
VK4ATN	35	183	VK4KS	9	153
VK4HR	12	182	VK5RW	4	150
VK5RU	2	186	VK4RW	23	147
VK5BZ	3	178	VK4LN	11	141
VK5KE	10	163	VK4JE	7	140

### New Members

VK5TE	27	115	VK4TE	36	101
VK5RW	28	111	VK5ACN	39	101

### C.W.

Call	Car. Cnt.	No. times	Call	Car. Cnt.	No. times
VK4FJ	29	234	VK5CK	25	210
VK5PH	15	226	VK5BY	45	182
VK5KE	19	225	VK5GO	39	183
VK5BZ	8	222	VK5VL	39	173
VK5HR	8	218	VK4EL	9	172
VK5XU	45	213	VK5RU	14	172

### Amendments

VK5CK 41 140

### New Members

VK5RP	56	186	VK5CX	55	108
			VK5ZA	57	101

### OPEN

Call	Car. Cnt.	No. times	Call	Car. Cnt.	No. times
VK5ACK	6	229	VK5JE	12	110
VK4FJ	22	228	VK5HQ	3	101
VK4HR	7	225	VK5NS	15	106
VK5BZ	4	231	VK4EL	10	178
VK5XU	61	221	VK5RW	12	171
VK5RU	8	216	VK5DI	2	170

### Amendments

VK5CK	54	143	VK5TE	22	141
			VK5VS	57	121

### New Members

VK4BG	66	112	VK5ZA	62	103
			VK5EG	67	100

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# 1957 "CQ" WORLD-WIDE DX CONTEST RULES

## I.—CONTEST PERIOD:

**Phone Section**—0200 GMT October 28 to 0200 GMT, October 29.  
**CW Section**—0200 GMT, November 30 to 0200 GMT, December 2.

## II.—BANDS:

The Contest activity will be in the 1.8, 3.5, 7, 14, 21, 27 and 28 Mc. Amateur bands.

## III.—TYPE OF COMPETITION:

1. Phone Section—(a) Single operator, (b) Multi-operator.
2. CW Section—(a) Single Operator, (b) Multi-operator, (c) Novice operator.
3. Inter-club.

## IV.—EQUIPMENT:

There is no limit to the number of transmitters and receivers allowed, and competitors may use the maximum power permitted under the terms of their licenses.

## V.—SERIAL NUMBERS:

Phone stations will exchange serial numbers consisting of four numerals, the first two being the readability and strength report, and the last two being their own ZONE number. Phone stations in Zone 1 through 9 will prefix their Zone number with zero (0), etc.). CW stations will exchange serial numbers consisting of five numerals, the first three being the RST report, and the last two being their own ZONE number. Stations in Zone 1 through 9 will prefix their Zone number with zero (0), etc.).

## VI.—POINTS:

Contacts between stations on different continents will count three points.

Contacts between stations on the same continent, but not in the same country, will count one point.

Contacts between stations in the same country for the purpose of obtaining a Zone and/or country multiplier, will be permitted but no QSO points will be allowed.

More than one contact between stations on each band will not be permitted.

## VII.—MULTIPLIERS:

Two types of multipliers will be used.

1. A multiplier of 1 for each Zone contacted on each band.

2. A multiplier of 1 for each Country worked on each band.

## VIII.—AWARDS:

Certificates will be awarded in each section as follows.

1. To the highest scoring station on each single band in the following areas:

- (a) Each call area of the U.S.A.
- (b) Each call area of Australia and Canada
- (c) All other countries.

2. To the stations having the highest combined total of all bands (or more than one band) in the following areas

- (a) Each call area of the U.S.A.
- (b) Each call area of Australia and Canada.
- (c) All other countries.

## IX.—SPECIAL AWARDS:

1. A cup will be awarded to the highest scoring Single Operator, All Band, Phone Station in the world.

2. A cup will be awarded to the highest scoring Single Operator, All Band, CW Station in the world.

3. A plaque will be awarded to the affiliated DX Club submitting the highest aggregate score of the scores submitted by its members.

- (a) For a Club to enter, an officer of the Club must submit a list of its members participating and their scores.

- (b) This list may include scores of Single Opr. and Multi-Opr. Stations; both Phone and CW.

- (c) Stations that are members of a competing Club must therefore indicate this fact on their report forms.

4. At the request of the donors, last year's winners are not eligible for the 1957 Phone and CW cup award. In other words the cups cannot be won more than once by the same station. This, however, does not hold true for the plaque award.

5. Also such special or additional awards as the DX Committee shall choose to make. In countries or sections where the returns justify second and even third place, certificates may be awarded.

## X.—SCORING:

The score for each Single Band is the sum of the Zone and Country multiplier for that band, multiplied by the total contact points on that band.

2. The total All Band score is the sum of the Zone and Country multipliers of all bands, multiplied by the contact points on all bands.

3. Everyone who sends in a log for a single band is eligible for a Single Band award only. If more than one single band log is submitted, indicate which band is to be judged.

4. Those who submit logs for two or more bands will be judged for the All Band award.

5. No station is eligible for more than one award.

6. Contestants must show a minimum of eight hours of operating time to be eligible for an award. If a contestant operates All Band and wishes to be judged for a specific Single Band, he must show a minimum of eight hours on that band.

## XI.—ZONES AND CONTINENTS:

To check your own Zone number and continent for scoring purposes, refer to the A.R.R.L. or "CQ" list as well as the W.A.Z. map. For continental boundaries the same as used for W.A.C. will be recognized. Should any question arise as to the positive location of any station, the official definition will be final.

## XII.—OPERATING SUGGESTIONS:

1. Foreign Amateurs; remember, scores are based on the greatest number of Countries and Zones as well as

stations worked. Therefore do not concentrate on working only U.S. stations. This is a world-wide competition.

2. Foreign Amateurs; it is recommended that you give the call letters of the station you are working at the end of each transmission, instead of "BK" as this would prevent much QRM of stations piling on and calling you.

3. Overseas phone operators should indicate which end of the band they are tuning or which portion of the phone band (American or foreign) they intend to cover. This is extremely important on 21 and 28 Mc.

4. CW stations would greatly reduce QRM and speed up contacts by working stations off their own frequency. Likewise, U.S. stations should avoid calling "that rare one" on his own frequency.

## XIII.—RULE CHANGES:

No changes from last year. See modification in Rule IX, Nos. 4 and 5 re awards. Also note definition of 8-hour minimum in Rule X, No. 6.

## XIV.—LOG INSTRUCTIONS:

1. In keeping log, fill in Zone number and Country only first time it is contacted on each band.

2. Use a separate sheet for each band.

3. Keep all times in GMT.

4. All contestants are expected to compute their scores. Logs should be checked for contact duplications and proper point credit before they are submitted.

5. Make sure name and address is clearly noted on each log.

6. Each contestant must sign the usual pledge. Note sample contest report form.

7. If official log forms are not available, it is hoped that the contestant will make a duplicate form as illustrated. The size is 8½" x 11" with 52 contacts to the page.

8. Copies of the Zone and Country list and log and report forms are available from "CQ", address listed below. Send a self-addressed, stamped envelope, or in the case of overseas stations I.R.C. coupons. Make sure to include sufficient postage and state how many sheets are needed.

## XV.—DEADLINE:

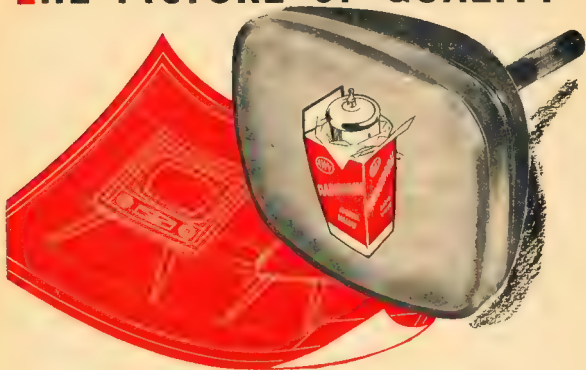
All logs must be postmarked no later than December 1, 1957, for the Phone Section and January 15, 1958, for the CW Section. Send all logs direct to: "CQ" Magazine, 300 West 43rd St., New York 36, N.Y. Attn: Contest Committee.

## 50 Mc. W.A.S.

Call	Cer. Add. No. Conts.	Call	Cer. Add. No. Conts.
VK1WJ	13 4	VK1ABZ	10 1
VK1WZ	1 3	VK1BA	11 1
VK1VW	9 3	VK1BG	12 1
VK1RY	2 2	VK1ACL	14 1
VK1RH	4 2	VK1AD	16 1
VK1LC	1 1	VK1HO	17 1
VK1DW	3 1	VK1ABC	8
VK1RR	8 1	VK1WH	18
VK1ST	7 1		



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## S.W.L. SECTION\*

### NEW SOUTH WALES

Barry Cartwright, from Richmond, N.S.W. Just missed the boat by one day last month with his letter. (These notes have to be with the Magazine Committee by the 15th.) Barry states that he hasn't yet built a 3 mx converter, but has plans for building a G4ZU beam in the near future, evidently with the idea of really going hard after the DX. He is at present in the throes of constructing a three tube converter which should be in working condition very soon. Barry finds that 15 mx is the best DX band for him but is also very prone to QRM from ignition and power lines.

He guarantees that Richmond is the noisiest town in Australia and says that a Ham friend in his street will bear his statement out. Well, I don't know, Barry. I live on a main road with plenty of cars and trams and have an h.t. power line on two sides of me. I'd say the country boys are on top there.

Our next letter comes from Don Grantley, of Holbrook, N.S.W. Don, like Dave Jenkins, is keen on battery operated L.F. receivers. He has been working since 1952 using an R1082 (AR14) 5V battery operated L.F. which he says has proved itself. As proof he quotes the following logged on 20 mks in the past few weeks: YV4, VK9, OH, DL, K17, EA, VS, KP4, OZ. The antenna used at the moment is about 30 ft. of wire from chimney to gable. The set originally cost Don 45/- so he evidently has a bargain. Don, who was a telegraphist in the R.A.A.F., intends to sit for his ticket in January under the urging of George ZADZ. Hope you get through OK Don.

### VICTORIA

At the Aug. meeting 22 members were present and we were pleased to welcome two new comers in Charles Sanderson of East St. Kilda and N. Inglis of East Coburg in the Group. Election of office-bearers for the forthcoming year was as follows: President, L. Poynter; Vice-Presidents, M. Ide, A. Stebbing, Secretary, I. Hunt, Asst. Sec., M. Cox, Council delegates, G. Robertson (JWV) and Noel Sinnbeck (TANS). Organising Committee: L. Woodman, M. Cox, I. Hunt, B. Stebbing, M. Ide. Official Observers: F. Nolan and G. Morris.

After business was disposed of, we were entertained by Noel TANS with a film featuring tx hunting and another on the Melbourne airport, which included some shots taken during

\* Compiled by Ian J. Hunt, W1A-13007, 211 St. George's Road, Northcote, N.18, Vic.

the Group's visit to D.C.A. at Essendon. These were followed by some films in much lighter vein kindly brought along by Michael Ide. We would like to thank those two gentlemen very much for providing us with such an interesting evening.

The visit to the Newport Power Station, despite poor weather, was a great success. About 15 members attended and we were shown everything from where the coal arrived at the power station through to where the outgoing electricity was controlled.

Recently several members in search of knowledge of Ham Radio visited the station of Bill Tregear, 3TK BIL, who is always ready to provide help whenever needed, kept the boys most keenly interested by showing them not only his equipment but also log books dating back to the early days of radio and other relics from the times when a big spark was the right thing. His stories of those days and of his own experiences were something which they will not forget in a hurry. The boys went on their way fortified by a most enjoyable supper. We wish to thank you Bill and your good wife for looking after our members in such fine style.

On 2nd Sept 25 members participated in a most interesting inspection of television station HSVI. Divided into two parties we moved gradually through the whole process of putting a tv programme on the air from studio or film to the final output from the control room. Quite a few amateur faces were apparent upon being shown the microwave transmitters used for relaying the programme from studio to transmitter up in the mountains.

The Group meets each month at the Institute rooms, 191 Queen St., Melbourne at 8 p.m. on the last Tuesday of each month.

### PAPUA-NEW GUINEA

This month we have a short note from R. Clarke, W1A-12801, who informs us that the A.O.C.P. class is going along steadily and a couple of the chaps intend to sit for the exam. in January and home with a bit of luck to make it. Bert Smith is looking round for a good receiver. At present he is using an Ekko but it is not exactly suitable for Ham work. Laurie Howard is looking for Pye Intercontinental and getting some good results although he has not been very active this month. Bob Clark has been overhauling his ARV and is pleased with the results. He is busy now building a pre-amplifier to try and break down the noise level which he suffers at his QTH. All the associate members of the Division have now been allocated a w.l. numbers, so it is hoped they will take a more active part and come to the meetings, thus making more news items available.

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## DX ACTIVITY BY VK2OL†

Have missed out on some of my "over the air" contacts this month so, unfortunately, we will not know just what they have been up to. For those who have been holding off 21 Mc., do not dally any longer. W.A.C. is there for the taking minus the hectic QRM we are finding on 14 Mc.

## NEWS AND NOTES

There is an abundance of material this month. Some has been omitted as it would be obsolete by the time you read these notes.

Firstly, 6LG, 6BE, 6CL and 6EJ have been amongst the ZS on 3.5 Mc., signals of over S9 being received from those listed under the 6EJ activities. Time this was going on was between 1900 and 2100z.

The proposed trip to the **Maldives** from VSI has been cancelled due to the unserviceability of the aerodrome. This is not expected to be ready before Xmas.

**DLAAP** will operate from Crete and Rhodes the first week-end in October with the call of SVOWAA (Crete) and SWOWAB (Rhodes) and requests at least 1 I.R.C per QSL. He is being financed to make the trip and this will help defray expenses (5AB).

YK1AT can be heard 14051 Kc. at 1500z.

UP2AS is going on an expedition to Tanna, Tuva, possibly September. Two different calls have been given me and I think the 3W8AA version is most likely to be closer to the mark and his version is UA0KTA/KTB/KTT. W8YV has the calls of UA0KQJ and UA0ON. Phan has told me that the derivation of the "Iron Curtain" call signs is the letter "K" when used after the figure indicates it is a club station and the next letter is for the province of operation. This principle has been mentioned to me before so there is probably good foundation for following closely the letter after the "K". I have no info on the two letter calls to date other than they are not club stations.

Don't be led astray by the station signing HB—/FL1. FL1 is being used by stations which normally use /HE1. The position is not quite clear at present as to how the FL1 is going to be used by stations permanently licensed for Liechtenstein.

VE3AB heard nothing on 3.5 Mc. during the R.D. Contest. Chas. has now reached 103 countries worked. VE3AHU/SU was operating from the Gaza strip (5AB)

All the following from WBYV  
VRSR, who was married in June, will be  
returning to VRS about mid-Sept. and will be  
active all bands c.w. and phone from 0200-  
0700z.

UA0KFF is reported to be active from Tibet.  
Ghana is going to change its prefix from  
ZD4 to 3G1.

W0AJW (XE4A) was expected to operate from Asand Is., mainly on phone, using the call OH1ST/D, during September

FLSAB is now available on phone.

† Frank T Hine, 30 Abbotsford Road, Homebush, N.S.W.

FRACD is on phone from the Camera Is.

RAEM is the call allotted to one of the Soviet Ice Breakers. It has been heard out

Before I leave this section, I think it probable the best place to add comments by Bram SAB, on his problems with the JZAP/JZAP/QSLA. He has had no end of complaints, both from VKs, me included, and the DX boys on the net. I have not heard from him since the QSO Bram has NOT received a card from many of those who state they have sent one through the Bureau. He has answered all cards sent him, but he has not received any of these have not reached their destination. Cards despatched to KEDDO and CEJE in Oct. 1981 have still not been received. There is a possibility that these have been lost in the stations apparently. If you have not received a QSL to date for a QSO with the two above-mentioned JZ stations, try Bram VKSAB one more time.

## ACTIVITIES

1.5 Hz: 6HJ and others. Z85OM\*, Z85PM\*, Z88AQ\*, Z88CD\*, Z88CV\*, Z81FX\*, Z88GN\*, Z85JO\*, Z88AV\*, Z84IA\*, Z88QK\*, Z85YC\*, W. VK8YK\*

1 Me 3AIR, W\*, ZC4CH, DLEXT, HB86X,  
KH6BMD, 1AGH, KZ5KP\*, FY1BLT\*, KM-  
6AX, 1QL, VK0AS\*, VK0AB\*, UA01J, 0EF,  
VY0XK\*, VK8DB\*, VK0AB\*, DU7SV\*, JA\*,  
BER8188, CM8TL, GD4VH, Z8SLZ, Z6EDT,  
KW6CA, KM6AX, KR8AK, VK0AS, VK0AB,  
VK0DJ

14 Mc W4IR UAOUKB<. Z1AYZ  
W7UOU/KS<. KP4AIO. HBIMQ/FL. XWAB.  
XWAG. CRIDPA. P7RAY. HILZAM ZAGH  
UAFYE. UADPB. XWAG. UAOUKB<. UA-  
V7UOU/KS<. UAOUKB<. KP4CC. VK8VH.  
VK8AS. VU2XZ. UAOUKB<. XWAG.  
W7UOU/KS<. LA1P. LA1CB. UAZAW/XN.  
JAMS. CBAK<. SQL. PWTWZ. XWAA<.  
CH2AY. VP7VE. W7UOU/KS<. VP8PW/P.  
VU2XZ. UAOUKB<. XWAG. UAOUKB<. XWAG.  
P4S. HBIMQ/FL. GDSUB. HILZAM. UG-  
LUB. UPTAT. M5. LUTAZ. LUTABL. LU-  
ZAB. SRZ. LIZAB. L23KAS. HA1HSA.  
UAFYE. UADPB. XWAG. UAOUKB<. XWAG.  
V64<. V65<. V67<. V68<. KL7. BE8RIH. CX-  
10. FBXCK. G83SP (who else heard this  
Scout Jamboree station?). JA1G (Amurical).  
JA1G. JA1G. JA1G. JA1G. JA1G. JA1G.  
UHFKA. VP8KL. ZAIKAD. XWAG. Z38P.  
LUA-2583 SVIUS. UJ8AG. XWAA. UJ2R.

14 Hr Phone 2AGH VRUB PJJCE  
ZAMB VKPAD ZL3AA SAB KGAA- RH-  
JTD- COTOF, KZSFA VPBG W4DQA  
KS4 ZC8RF HL2AJ HL2AJ HIRRE  
4K4BU LXKDE VK0CJ HC5CL COTRG  
HKTEZ FUDAD VPFX TGTJ YU3OB  
FPIAP OH2AA- VRAC VR6TC VO-  
IND VRAB Y5ILA EAMCC Z5ANE  
VP2VB TF2WZ FPIAY FMCD- Nice  
going Bram SR VK4YT 6LZ VE2- VE4-  
VUZAV 4STSW Z56 ZEP VRAJB BERB-  
14H VK6YT VK4VH

11 MC CW: A1M UC3CB. OAT\*, KZSLY\*,  
4X6IV\* 4XAPS\*, SP8CK\*, PA0TAU\*, VPTNM\*,  
CQWBNQ\* ZP9AY, SV0WR. 2AMC KW8CE.  
VSAT 3QL HJHBE, CT1JS, PY1BQ1\*, KZ-  
BLY\*, EA8BF\*, VK6AB\*, GD3FXN\*, UA0GF\*,  
JEF G3JTN\*. G\* VS1\* W\* ZN\*

II Mc P5000 IAMB KRFM\* SAB VS  
QT\* SP5CK\* VMLF\* VP9G\* ZS6JW\*  
KG4\* KS4AM\* HASTI\* HR3HH\* HS\* F8T\*  
VK0AB\* VP7BN\* UB5WF\* VP5EM\* YV3AY\*  
VP6LT\* VE3AHU/SU\* WB0U/KS6\* VP5BL\*  
CR3SP\* HK3PC\* MP4BCC\*

IN Re. SAB ZELV\*

### QUESTIONS OF INTEREST

ZBICZ—Majta Workshop, R.E.M.E., Br. Forces,  
P.O. 51.

QSL, via Box 88, Moscow.

KAOSC—A.P.O. #15, C/o. P.M. Frisco.  
HLIAM—A.P.O. #70, C/o. P.M. Frisco, or via

KOC:SW  
HBIMQ/FL-Via HBIMQ.  
YK1AT Box 2249, Damascus.

XW8AB, XW8AG—Box 188, Vienne, Laos.  
VP1VB—Via KV4AA.  
VK9AD—Douglas Drive, Norfolk Is.

HIBBE—C/o. U.S. Embassy.  
W4DQA/KS4—902 Plaza St., Orlando, Florida.  
VOSAC—C/o. G.P.O., Hargeisa.

THE QSLs RECEIVED

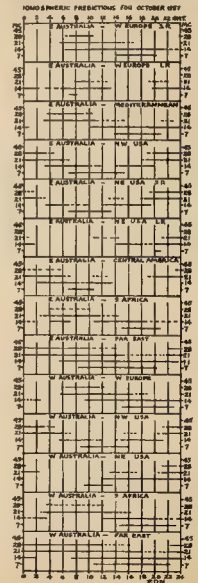
LAIR: VPSBH, VNSFF, EAQBF, UHSCJ  
EAMH: KWSAB (7 and 14), VPBWW, CTIAH,  
UAIKAE, SQL: JZQPC, ZFAJH, ZSTC, ETIAH.

6E3 CFEAG, ZD8BX, VQME, UJ8KAA, UI-  
8KAB, VSIGX (35, 7, 34, 21 Mc), VP8BO.  
BERSigs: CX1BO, CR10AA, IHENU/Trieste.  
LUTXP, UAL8AE, UDEKAB, UG8BF, VP8BH.  
VQ2JN, ZR1CE, 4X8HK

And so we come once more to as thanks  
to, firstly, WXYZ for his helpful letter  
John for the "G" contest, SARB, who is steaming  
to give this month's prize to WXYZ.  
SAGH, much to his disgust had to hear his  
first 854 whilst visiting my QTH, SAB, who  
whilst recovering from an illness was able to  
hear the 854 and DZ, for his QTH, SAGH  
MS and GRX, who, hoping to hear the  
the good ones more often, GEJ, who naturally  
very excited about the ZS's on 3.5 if only I  
could pick one off to complete my WAC on  
listening station. I have also heard  
watts, BERNARD and WIA-WWA

Have been unable to find out if anybody has heard anything of Hans SAKH, so know no developments in his trip away.

By the way, have you noticed the station that has been sending "U"s on 14003 Kc, for ages has moved to 14001. A little bit more of a nudge—just one less.



# FIFTY-SIX MECAGYCLES AND ABOVE

## 56 MECAGYCLES

Trans-Pacific schedules from U.S. to Australia will be resumed on 1st October, 1957, at times to be announced later. In addition to radiating signals beamed on Australia, K8RNO, W8SUE, W6AJF, W8BAZ and W8UOV will all be listening on the fifty-six meca-cycle band. All have receivers for this band in addition to their own 50 Mc. allocation. This gives a real incentive to use the 56 Mc. band.

The above information came to hand from Norman Burton, of Revesby, N.S.W. It is requested that Amateurs, particularly in VKR and VK4, operate on the 56 Mc. band and endeavour to make contact with the American stations.—Ed.]

All is quiet on the 56 Mc. front. No great burst of activity on the band though much call is appearing each week. Main scene of activity is on the work bench where new rigs are under way. When the finished jobs are on the air, the scene will be reminiscent of the 1960 period when activity was at a high level on 80 Mc. Browning around the various stations, the call letters, and the relating to construction jobs under way can be heard, a healthy sign indicating that the d.c. man is interested as well as the v.h.f. man.

T.V.I. has proved a bugbear to many of those whose rigs have been built for some time, awaiting complete construction of the front stage going in favour of a straight alt. with, complete shielding and link coupling between the following stages, with more by the time the stage Ham ever used. Strange the ways of the T.V. serviceman. A case to mind (yes, it happened to me), where a question of a minute's work was placed on the T.V. turret, proving most effective when the critical length had been found. The same for a minute's work on the loose end, cut some off, pared the ends back and soldered on to the aerial terminals on the back panel. His reasoning was, "the loose end is a nuisance, it will catch the flames fellow said the 144 Mc beam was the strangest I've aerial he had ever seen and what a peculiar direction it was pointing at". The moral, make sure that the XTU or what have you knows what you do to the T.V. aerial work here in VK has had limited, if any investigation. It has been tried on rare occasions when the opportunity was not to go to avail, possibly because of the limited occupancy of the band. A further limitation is VK's location in the temperate zone, our southern latitude not being as close to the effective southern auroral zone as the northern more populous districts of W. land are to the northern zone. But that is not the reason why the W.V.I. has been asked to co-operate during the Geophysical Year in the work of auroral investigation. More important, sometimes Government back bodies and investigators. It is the cheapest form of good public relations and one where the Government can easily find a junior associate to that large segment of members who have no aspirations to executive work, and who would not like to do something to help the Institute.

Meanwhile, the important news is the re-commissioning of the W7VK stands as listed above. An interesting note was reported by W7VK on 1st October, 1957, at times to be announced later. In addition to radiating signals beamed on Australia, K8RNO, W8SUE, W6AJF, W8BAZ and W8UOV will all be listening on the fifty-six meca-cycle band. All have receivers for this band in addition to their own 50 Mc. allocation. This gives a real incentive to use the 56 Mc. band.

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—Frank O'Dwyer, VK3OF.

of KBKUK's array are not known. This record breaking contest was held on the 1st October, 1957, at times to be announced later. In addition to radiating signals beamed on Australia, K8RNO, W8SUE, W6AJF, W8BAZ and W8UOV will all be listening on the fifty-six meca-cycle band. All have receivers for this band in addition to their own 50 Mc. allocation. This gives a real incentive to use the 56 Mc. band.

## NEW SOUTH WALES

Meeting.—The monthly meeting of the V.H.F. and T.V. Group was held at Gore Hill Technical College on the 1st October, 1957, at times to be announced later. In addition to radiating signals beamed on Australia, K8RNO, W8SUE, W6AJF, W8BAZ and W8UOV will all be listening on the fifty-six meca-cycle band. All have receivers for this band in addition to their own 50 Mc. allocation. This gives a real incentive to use the 56 Mc. band.

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## VICTORIA

Fox Hunt.—The August hunt was a successful night for all concerned. Roy ZAP, was fox and three hound cars, viz: ZAT, 3AOG with SMS, and Bob Hall with ZATU turned up. The hunt started at 8.15 p.m. at Richmond, Hawthorn, Glen Iris and Ashburton—the final location being at the home of Cliff ZATP and Margaret, where everyone had a good time and at the end of the evening ZAT was declared the winner with Tom ZAO runner-up.

V.H.F. Meeting.—At the August meeting, Peter ZAP gave a short description of the Butler overton oscillator. He had his 56 Mc. converter on display, which he had used in this type of oscillator. Peter also had his 388 Mc portable gear on display and he worked 3MT at the Royal Melbourne Technical College on the 1st October, 1957, at times to be announced later. In addition to radiating signals beamed on Australia, K8RNO, W8SUE, W6AJF, W8BAZ and W8UOV will all be listening on the fifty-six meca-cycle band. All have receivers for this band in addition to their own 50 Mc. allocation. This gives a real incentive to use the 56 Mc. band.

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ways. There has been some activity on 388 Mc lately. Both Z2FA and Z2CZ operated from Science Centre, Concordia College, Education Week period. By the way, Z2CZ is now working on 144 Mc, whilst Z2FA has a converter going. He hopes to have a Tx going soon. A new call, Roaring aristo soon. Z2E, but don't let it fool you—it's Stan, ex-Z2E1. Congrats on the full ticket Stan. Glad you're 144 Mc. Congrats to the V.H.F. and T.V. Group. Also to Jim ZABA; late in August, XVI Vets presented him with a fine daughter—she is doing well, including Jim. Geoff SAUX has had an unfortunate accident recently. He injured his hand rather badly when he got a "kick" from the p.a. of his rig. David Z2AT has been running mobile on 80 Mc and so it looks as though there will be some more news from him. Fred and Dave David, who now lives in North Balwyn, passes on the following for newcomers to 8 m. One or more of the following stations will be on deck at p.m. each night: Z2AF, Z2AI, ZAJH, ZSF and ZAHJ.

I had a visit recently from Lindsay White, who is present stationed at Hopevale. Lindsay is just waiting for his call to be issued and then he hopes to represent Hopevale on 80 Mc. A person waiting for his call is Jack Hudson and soon Geoff comes through there will be another 3 m signal from down Highest way. Brian Z2FP from Frodo in the V.H.F. and T.V. Group. Isn't it Brian? After a couple of months of messing about I think I've finally got rid of it. It appears to be a very good rig. By the way, I have been reading in the V.H.F. and T.V. Group. Also to Jim ZABA; late in August, XVI Vets presented him with a fine daughter—she is doing well, including Jim. Geoff SAUX has had an unfortunate accident recently. He injured his hand rather badly when he got a "kick" from the p.a. of his rig. David Z2AT has been running mobile on 80 Mc and so it looks as though there will be some more news from him. Fred and Dave David, who now lives in North Balwyn, passes on the following for newcomers to 8 m. One or more of the following stations will be on deck at p.m. each night: Z2AF, Z2AI, ZAJH, ZSF and ZAHJ.

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## YL CORNER

BY PHYL MONCIE\*

In a letter received from one of our YVL readers, Jan Nilschke (Mrs SEN) we catch a glimpse of life at the SEN location. Jan writes:

"Well the work has at last dropped his burden, another male, having said, 'Bye' by name, and the OM couldn't have been more pleased another aspirant for 'beam raising' (he thinks). Usually that has been my lot, but funny how these jobs and tests all ways must be done no earlier than 11.30 p.m. when poor YVL is snug in bed and must get up 'to the cause of duty', practical life or death or some unbeatible reason. After much arguing and prevailing on his sympathies, which gets you nowhere, the raising of the beam wins, and for a week afterwards you struggle to feed 'the brute', while in the grips of the flu, and all the sympathy you get from the OM is 'Why don't you look after yourself, stop gallivanting about of a night-time'.

"Anyway I really do feel it's a great life being YVL, but I must admit there is usually a scramble to get hold of and read 'Amateur Radio' first. Even our 18-months-old harmonic, Robert, seems to have a very intense interest in Amateur Radio and knows which way to turn knobs and pull out plugs and of course has to have his say over the mike. I'm going to stand in for him in a couple of years with three of them against me, I don't know. As it is now I'm dragged into the shack to stand with my eyes nearly turn inside out, but I'm assured that one day I will get my corner cupboard in payment and after having waited two years for my hand basin in the bathroom, I can believe anything.

"Quite honestly though I must admit that I have been well schooled in the art of Beam Radio and I really did go into it with my eyes open. You see a week after I had first met my OM-to-be, he arrived at my home complete with gear, more key etc. At this time he was bedded in the 'best bedroom', but soon after was banished to an adjacent 'rubbish room' it was no time at all and VKEEN was boldly nailed in large letters on the door. Fender lines were strung across the room and the window and the 'wind-light' lower. We used to wonder why the lights went dim when SEN was testing. I was made QSL manager and was quite honoured with the position, but if I had only known then what I was up for, perhaps I'd have been less enthusiastic. Now I am expected to write up to the SEN which he says I can't do so capably but believe me I don't fail to detect a certain amount of 'she's got nothing to do all day' sentiment in the OM's speeches.

"However the OM throws out his chest when he shows visitors to the shack and they see the neatly labelled bins and duty shelves, but I'm just too ashamed after he's been in these wrecking things as he's so dreadfully untidy. I even put in a strip of new line to please him and he takes on it as a 'sparkled' pattern, which I strongly suspect to be solder which flies in all directions when he is busy 'overriding' something.

"We are going to Sydney shortly so the boys up there had better wire their tools to their benches in case my OM decides to 'dig up a Ham'.

"Good wishes to the column. I never miss reading it, and I'd like to send 73 to all the other readers.—Jan Nilschke.

\* 235 Union Road, Ascot Vale, Vic.

## C.D.E.N. NEWS

The value to humanity of Radio Amateurs in an emergency is highlighted by the release of a French movie "Race for Life". The story is written around a drama at sea and the part played by Radio Amateurs in the rescue operations. Radio Amateurs in Australia and Civil Cities are being given the opportunity of seeing a special preview, thanks to a gesture by the film's distributor and exhibitors.

Divisional Co-ordinators are now in possession of up-to-date information on C.D.E.N. activities and after Divisions have had a chance to peruse and criticize instructions to C.D.E.N. Operators and the final draft of "Authorization Card" steps will be taken to circulate both to members of C.D.E.N. through Divisional Co-ordinators.

Hereunder are Rules regarding Initial Action and Co-operation. Discussions relative to same will be included in next month's C.D.E.N. news.

### EMERGENCY INITIAL ACTION AND Co-operation

1.1 The first action of any Amateur is to advise HQ Control Station via any available channel that an emergency is developing and indicate to whom he has offered to enlist the services of C.D.E.N.

1.2 The Amateur or Amateurs shall then advise the Officer or Officers concerned that W.I.A. C.D.E.N. has been alerted and that he/they are in a position to handle traffic with such places as directed by the Control Station or necessity.

1.3 Other stations in the affected area will report into the control station for instructions. Requirements may include handling traffic, monitoring frequencies, or intercommunication with other services.

1.4 All messages handled from an emergency area must be authorized by the person

### FIFTY-SIX MEGS. AND ABOVE

(Continued from Page 14)

which my spy most likely could copy if the beams were directed his way, some have gone mobile, and the one most consistent that way is 575, who uses a 520 coil. The OM, who is still the method of tx. no xtal outputs yet on mobile, the trusty CWS or T193 tubes being the base.

There are some newcomers on 1 mxx. We congratulate AU 82AL, AI 52CR, George 5ZDF, Brian 5ZBN, and it is known that there are others who have just resolved to get on, but have not been around much. They will, it is hoped be about in time for next report.

Graham 5ES bobbed up on 1 mxx recently with quite a nice signal in the lower 70s. The W.I.A. session is put over regularly by one of the boys for the benefit of all and sundry who cannot tune 40 mxx.

Jim 5JX has gone very quiet about antenna lately, rumour has it that he has been experimenting with a jet-propelled bath chair so that the "old dodger" can keep up with things generally. He is also building up a new low frequency rig, but not for c.w.

With warm weather approaching we expect more activity from the mobile gang—hope to work Joe 5JO on the band again soon.—5JX.

### MELBOURNE AUSTRALIA

The V.H.F. Group meeting on 2nd August was held for the first time in our new rooms at D.C.A. Amateurs Section. The business session of the meeting dispersed at 8.15 and down to listen to two lectures, one by Alf 5RA, and the other by Rolo 5BO. Alf's was entitled transformer measurement, without elaborate test gear, and the boys enjoyed it because Alf is a master of this subject. 5BO talked on crystal grinding—theory and practice—the latter part coming from experience. Again this was well received.

The Fox Hunt on 24th August was again very successful. Dennis 5AW was the fox. It was a close go as three cars pulled out of the hole together. The final placings went to Ralph 6ZAD, Jack 6ZBU and Don 6ZAV. There is a yarn going round that a certain VK6 finished up at the wrong end of a shot gun. An irate householder must have thought someone was trying to push his clothes line—evidently mistaken for a feedline and being followed, back to the rig.

Jack 6ZBU has been on 56 Mc since receiving his call sign and is being remarked as a bit mite happy. Rolo 5BO and Wally 4WG still checking the 236-mile path to Albany on 144 Mc every morning, with a 30 min. joining in when available. Rolo 5BO reports that a signal from TOM 6TH was received in Perth on 56 Mc—a distance of 90 odd miles—from a tripler 6ZAV.

listed on the Authorization Card, whose signature on the Authorization Card and initials on messages should be obtained where possible.

1.4.2. The initials of authorised deputy will suffice on messages.

1.4.3. Locking the authorization as above, the Amateur may originate or accept such messages which plainly indicate that they are of a genuine emergency nature and can be substantiated by fact.

1.5. All initial calls to be made on guard frequencies 8501 Kc., 7083 Kc., etc., but traffic is only to be handled on assigned net frequency.

1.6. All stations in the area, adjacent areas and wherever interference to emergency channels is possible are to refrain from using that frequency and should move immediately when requested by station detailed to guard channel.

1.7. Co-operation with other services will be given willingly upon request and Control Station notified of action being taken.

1.8. The Control Station will at all times exercise over-riding control of network activities. All stations in the net will refer any queries to Control for advice and decision.



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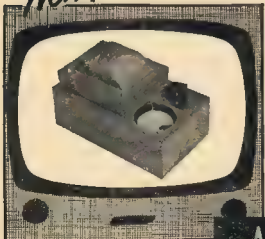
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### A & R

### T.V. Voltage Adjuster



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With the increasing number of Television Receivers now being installed, the demands made upon the T.V. serviceman's time will increase steadily.

In certain areas reception difficulties often occur due to low supply voltage, and it is certain that some ready means of detecting this condition would assist the serviceman, and perhaps save valuable time in endeavouring to locate a suspected fault within the receiver. With the above in mind, A & R have available the T.V. Voltage Adjuster as illustrated. Soundly constructed and finished in attractive Silver-Grey Hammerstone, this A & R product provides the serviceman with an invaluable, yet inexpensive addition to his test equipment.

#### An Aid to T.V. Installation and Service

Flicker or shrinkage of the Television picture often indicates a low line voltage, leading to complaints of unsatisfactory reception, or to difficulty in adjusting the receiver controls. This condition can be reproduced with an A & R Voltage Adjuster, thus indicating the lowest possible mains voltage for good reception. The mains taps on the Receiver can sometimes be adjusted to suit, provided the voltage is consistently low.

There are many other applications for the A & R Voltage Adjuster, such as, correction of input voltage to Amateur Transmitting and Receiving Equipment, Tape Recorders, Hi-Fi Audio Equipment, etc., provided that load imposed is within capacity of adjuster. The auto model is quite suitable for these applications.

#### Servicing Transformerless T.V. Sets

Servicemen will find the double wound model an invaluable aid when servicing transformerless T.V. Receivers. The Receiver under test can be safely isolated from the mains supply, thus affording maximum safety and a safeguard against possible damage to valuable test equipment. A separate earth terminal is provided for earthing the receiver chassis to the adjuster if desired.

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# FEDERAL, QSL, AND DIVISIONAL NOTES

## FEDERAL

### WEST GERMAN AMATEUR ON 4 METRES

A limited number of West German Amateurs are to be allowed to operate in the band between 7.0 and 7.8 Mc during the I.G.Y. It is understood that D.A.R.C. have applied to the West German Government for permission to operate a special I.G.Y. station using the call DLGCV, but no details are available.

### SCATTER RESEARCH PROGRAMME DURING I.G.Y.

During the International Geophysical Year a research programme on Ionospheric Scattering will be conducted by Scientists and Radio Amateurs. Transmitting and receiving stations will be installed by the American National Bureau of Standards, and will operate in the 30 Mc band. Transmissions will be beamed Northwards and Eastwards from places in South America. Federal Amateurs have been asked to report reception of these stations.

### 1956 I.T.U. CONFERENCE

The Administrative Council of the International Telecommunications Union has set the date for the opening of the radio conference as 1st July, 1959, to run for 10 months. Five days of the conference will be tentatively chosen as the conference "ite", has been confirmed by this year's meeting.

## FEDERAL QSL BUREAU

In a letter covering the forwarding of QSLs the President of the Tekniker For Allas Eterklubb, of Stockholm, Sweden, states that the Club is the greatest DX club in the world and has 38,000 members while the technical magazine has a circulation of 70,000 copies.

The Denver Radio Club announces an award called Mills Hi Award. This certificate is available to all Amateurs who contact 25 stations located in the Denver metropolitan area. Ten of these contacts must be with members of the Denver Radio Club. The list of stations will be sent to the Club at Box 356, Denver 1, Colo., U.S.A., where they will be checked against members' logs. Additionally, a certificate will be eligible to receive one year's subscription to either "QST" or "CQ". Renewal subscriptions may be gained by completing the card and sending it with an additional \$4.00 to the station to those originally submitted. No information is given as to the retrospective nature of this award.

A card has come to hand from France for VKAIF whose address is given as Cococ Kelling Islands. Name of VKAIF is given as "Miles". Time of contact which was on 15.12.55 on 1st August, 1957, on 14 Mc. Maybe "Miles" is the successor to VKRAJ.

Cards have come to hand from UA1KAE located at Mirny, Base, Antarctica. The operator, George Minnow, is now back in the U.S.S.R.

VF6WH was operated from March 30 to March 27 by several W4 operators. Location of the station was the screened-in front porch of the Bayview Hotel, Georgetown, Guyana, in the island in the N.W. The station was operated non-stop for the whole period and 4,100 contacts were made with 2,562 different stations and bands. On a 48-hour period of operation yielded 2,465 contacts! Heliograph equipment was used throughout and the antenna system comprised a tri-band vertical, a tri-band horizontal and a vertical. Any VK not yet having received his verification can obtain same by writing Don Chessier, R.F.D. 1, Burlington, Ky., U.S.A.

Ray Jones, VK3JLJ, Manager

## NEW SOUTH WALES

The August meeting of the N.S.W. Division was preceded by a Special General Meeting to consider the proposed changes to the Divisional Constitution, as directed by a motion moved at the Annual Meeting. About 60 members were present when the Chairman, Percy Bailey, opened the meeting. On 19.8.57 several letters from members unable to be present were read on the proposed changes. These were followed by a recorded speech by the Federal President. The Chairman then outlined the history of the proposed changes quoting extracts from minute books and discussions had with the Division's Hon. Solicitor.

Many of the members present spoke on the desirability of making any changes, others thought that while some of the proposed changes were quite in order, others were deemed unnecessary. Finally, after an hour and a half's discussion, a motion that "The matter be referred back to Council for further consideration by them and to report their findings at some future date," was moved and was carried by approximately 5 to 1 majority. During the discussion on the motion, the Chairman indicated that Council had when the matter was first discussed by them, thought the proposed changes could be dealt with by a Special Committee.

The time taken to dispose of the Special Meeting did not allow time for a lecture at the normal monthly meeting as several items of business had to be cleared and the caretaker appeared at the door to indicate time had run out.

However, the following new members were admitted: J. F. Daleaid, VK2CZD; S. Davies, VK3AD; M. Y. Powell, VK3AYT; Fletcher, VK3ASF; and D. O'Dea, K. G. Scott Assoc.

The Secretary informed the meeting that the offer for the masts and tower made to the O.T.C. had been accepted. These will be removed from the present Hill Wireless Station and re-erected at 27VI at Durai.

A motion objecting to Council's action in regard to the QSL Bureau was discussed at length, but the reasons for the action taken had been given, the motion was defeated by a very large majority.

Coming Divisional events are the V.H.F. Spring Field Day on October 6 and the Hunter Branch Field Day at Blackalls on October 5 and 6. The South Western Zone Convention will be held on October 26 and 27 at Coolamang. Full details of the series of events given in other section of this issue. Members are invited to give these functions their support and join in the activities. Take along your family and friends.

The Field Day, which for the last few years has been held at Way Way, will be held this year at Concord on Saturday, 17th November. The change of location for this function should prove a very popular move and will be held in the Concord Sailing Club House with a large artificial lake alongside and a swimming pool a hundred yards away. It is closer to both Sydney and Newcastle by road than Way Way and is a few minutes further by train. Keep this date free and see next month's issue for further details.

As was indicated in the last issue, Vince Cahill, VYC, had been co-opted to carry on as Treasurer for a short period. Council's thanks go to Vince for his efforts over the past 18 months and hope he has left the post north. To fill the vacancy 3QG, Ced Smith, who has just returned to VK3 after spending some years in VK3, has been given the job of looking after the financial side of the Division. Those of you who know Ced are no doubt aware of his ability in this line of business.

The Division's C.D.E.N. officer, Roy 2210, is busy preparing details of proposed scheme for the VK3 Division. This will be sent to members for their consideration in the near future. Roy is also due to attend the C.D.E.N. School at Macedon, Vic., in October.

Remember to note the dates for the functions given and even if it is not possible for you to attend, let someone else operating at these functions and join in the fun.

## HUNTER BRANCH

Thirty members and visitors attended the September meeting of the Branch to hear Mr. R. Mondel from the School of Electronics and Communications lecture on "Impedance Matching," and also to view a film of the effects of a Hydrogen Bomb blast. A very enjoyable and educational night was had by all present.

Mac O'Brien, a keen country assent, had a fling at the district but the old nerves played up. However Mac's a great trier and he'll make it soon. He has built himself an all-band rx with plug-in coils and is converting a 333 Rodney 3CN is being heard more often at each vacation frees him from study. A few wet Sundays bring more Ham activity from IAGD, keep up George. Ernie 9FF, previously stated as his beloved 10 Mc band has opened to Europe in the evenings, and he worked 2C4 for the first time. Social Sec. Gordon Sutherland obtained from G. land a manual for his R34 rx. He kindly advised Ron 2ASJ who has the same type of rx and now, thanks to Gordon's tip, Ron has a manual too. Ron 2ASJ with lady friend attended the opera to see "Tales of Hoffman." Due to a family illness, Assoc. Sid Daniels had to cancel his trip to VK3 so he spent the holidays enjoying the opera at Ron's 2AA1's place of toll. Following in Harold 2AJA's track, Assoc. Jack Hamerton ("The March of the Rams") went on a rambling trip to the North Coast Zone, calling in 3C10, Tarro Bill 2AEY, Noel 2AHH, and the Crofton boys. According to 402 mg grape vine, all the YLs went bush when they heard that "Gentleman Jack" was coming. Jack's main mission, he says was to advertise the Hunter Branch Field Day.

Lionel 2CS, the operator of the Branch station 2AWX, has been on holidays in the big smoke and other places. Jim 3AHT has greeted VK4 with his presence and was holidaying in the mulla back of Goodwindi. Bill 3CT has just about completed his all-band t.v. proofed to work from DX while at home for a week with mumps.

It is with much regret that we note the passing of Mr. Stuart, the father of Ron 2ASJ. Ron's father was known to everyone who visited Ron or who had worked Ron on the air. Mr. Stuart always had a word of greeting for any of the local boys who contacted Ron in a QSO. The Hunter Branch sends its deepest sympathies to Ron and his family in the time of sorrow.

The Hunter Branch Field Days will be held on Saturday and Sunday, 5th and 6th October. The programme was published in August. A large attendance is expected and a large number of prizes are to hand for the various contests. Some of the donors of prizes are: Lawrence & Hansen, Martin De Launay, Radio Television and Hobbies, Club 2FZ, Radio Corporation, Varley 25F and others.

Don't forget that the Branch station 2AWX can be heard at 3000 hrs every Monday night on or about 1550 Kc. Listen for the latest Branch activities.

The next meeting of the Hunter Branch will be held at the Hunter Branch Technology, Tighes Hill, at 8 p.m. on 11th October.

## VICTORIA

The general meeting for September was held at the usual place on the second Wednesday night, 10th September, at 8 p.m. and Fred was back in the chair after his recent illness.

## WIRELESS INSTITUTE OF AUS. HUNTER BRANCH, N.S.W. DIV.

### SIXTH ANNUAL FIELD DAY BLACKALLS PARK

ON SATURDAY AND SUNDAY, 5th and 6th OCTOBER, 1957

Registration: 12/6 OMs, 2/6 XYLs, Junior ops. free.

## W.I.A. SOUTH WEST. ZONE N.S.W.

### FIFTH ANNUAL CONVENTION

at COOLAMANG 26th and 27th OCTOBER, '57

★ Book Early for Accommodation

As was previously announced the lecturer on this occasion was Major L. G. Moore, of the R.A. Sign Corps, and his subject, "R.S.B. Techniques in Service and Commercial equipment." For the average Ham the a.s.b. picture has become rather blurred over the last few years due to the number of controversial matters which have been bandied about. Here then was an excellent opportunity to get things straightened out by one who knows and we were not disappointed. The speaker put himself entirely at our disposal and we didn't let him stop until almost "lights out."

The lecture was presented in two parts: A theory section beginning with fundamentals and finishing with block diagrams of actual equipment and a film covering similar ground but with emphasis on operation.

In leading up to his subject the speaker outlined the difficulties that attend co-ordinating the use of the r.f. spectrum on a world wide basis, especially now that the demand for frequency allocations is fast overtaking the supply. Anything that can alleviate this congestion is being sought with much vigour and a.s.b. is proving to be a very definite answer in this direction. Its chief advantages when compared with the d.s.b. form of transmission are:

- (1) Only half the bandwidth is required.
- (2) Selective fading is almost eliminated.
- (3) Because of (2), distortion is greatly reduced.
- (4) Transmitter power is used more economically.
- (5) Multi-channel operation is available.
- (6) Receiver bandwidth can be reduced by half.
- (7) Signal-to-noise ratio is vastly improved.

Naturally, there are a few disadvantages to be contended with, such as high maintenance costs, high initial cost and loss in r.f. efficiency with this form of transmission, but these are far outweighed by the advantages as stated above.

In the U.S.A. such importance is placed on the worth of a.s.b. operation that efforts are being made to convert all frequencies below 30 Mc. to this form of transmission over the next ten years.

Similarly, a.s.b. is a very attractive proposition as it enables maximum use to be made of the limited power available and it also produces a better signal to noise ratio at the rx end.

Rather elaborate gear is required in the Service and Commercial field of operation using this form of transmission but, as the speaker pointed out, the same high degree of perfection is not required on the Ham bands and something far less pretentious and well within the reach of most Hams is available. This is

some consolation. Lack of space and ability force us to leave the subject here, but I am sure that the very business-like and informative manner in which the lecturer presented his subject gave all of his listeners much food for thought.

As time was short, very little general business resulted from the meeting. However you will be interested to note that the Philippines are now a permissible contact.

This is probably as good a time as any to remind you that the State of Victoria will be held at Colac on 9th and 10th November, when the South Western Zone will be hosts. The following information is being put forward, be communicated to our Admin Secretary (Mrs. May) at the rooms, 191 Queen St., Melbourne, as soon as possible so that the organisers can make their arrangements. The names of those who wish to attend the Dinner, stay overnight, attend the picture show on the Saturday night (XVLA and harmonics) and those who wish to be catered for at midday dinner on the Sunday. Also those who intend to stay for afternoon tea at the local botanic gardens.

It is understood that all deposit is required with hotel bookings, but where possible the next Sunday morning broadcast as full details are not yet known.

Tentative arrangements for the Convention are as detailed below:

Saturday Dinner in the evening followed by the meeting. While the QMs are coming to grips at the meeting the XVLA and harmonics who have arranged to do so will visit the local Hicks.

Sunday Transmitter hunt and visits to local places of interest (including local Ham shacks no doubt). Midday meal (chickens included) at one of the local hotels. Afternoon tea at the local botanic gardens.

From past performances this will be a large Convention and, unless the Colac boys are given the fullest co-operation, their organisation of the event could be badly hampered. Give them every consideration by letting your intentions be known as soon as possible, otherwise you have only yourself to blame if you "miss the bus."

One final word, a meeting needs an agenda and an agenda takes time to prepare. Therefore, please lodge all agenda items with Mrs. May by 21st November.

The above is only preliminary advice as further publicity will be given about the Convention, the magazine and over the air, so keep an eye and ear out.

Forthcoming lectures October—Roth Jones (3BG) will present an illustrated travelogue on the Middle East and Europe and on November—Bro. V. McKenna will present the R.F. System of the Cyclotron. At the conclusion of his lecture there will be a conducted tour of the equipment at the University.

Members admitted to the Institute at the Sept. '57 meeting Full Members—B. S. Bauck (3CQ), A. Lock (3AUL), R. Rutledge (3DXD); Associates—R. W. Eastling (3E), T. Biss, K. A. Chamberlain, K. A. Robertson.

#### WORTH HARKING OVER

Since the announcement in "Amateur Radio" of the altered time of the N.E. Zone hook-up several members have, over the past four weeks, made an appearance at 8 o'clock on Wednesday night for the hook-up. This is heartening because it indicates that interest is not completely lacking in the zone but it would be appreciated if more members would come on to pass on news and items of interest taking place in this zone. We extend a welcome to this zone to Allen 3ACQ, an ex-VY7 who recently took up duty in Victoria at Radio Australia, also to Bill 3AMC at Kyrenbar, who obtained a ticket a few months ago. Bill has been on several hook-ups each Wednesday night since getting his gear together.

Howard 3YV has retired from business and has taken up making cine commercial films. Jim 3JK has been selling a large amount of radio equipment, he is working on single sideband. Peter 3APZ is putting the finishing touches to a very well constructed t.v. set. Des 3CO also interested in t.v. along with Ted 3ED. Allen 3JUL, Geoff 3JUL and others Ray 3Y1 is putting more interest into photography, still has not completed his room to house the radio gear. No news is available on these members 3AMZ, 3QC, Frank 3ZU, and 3TS. No news available on Associates in the zone. Bruce 3AGG still persuing DX on 20 and 15 mhz. Ken 3ZCR working each night at movies in Benalla assisted by Keith. Hugh heard occasionally on 40 mhz. Andy 3FD has been on the hook-up along with Peter 3AXW. Les 3ALE may have to enter hospital for a short period soon. 73 chaps, and please

pass on any comments via the Wednesday night hook-up and let's see if we can live up this zone as in the past.

#### EASTERN ZONE

A successful fox hunt was held at Sale in July and the Sunday afternoon selected turned out to be a good day. Only three hounds turned up, which was a little disappointing, so it is hoped that a few more can attend our next meeting. Cliff 3AIT and Peter 3ZDS played fox, and gave the hounds a real show-down. They went through bogs, then through the streets of Sale and finished at a beautiful location on the other side of the canal. George 3ZCG was first to catch the fox who was bogged near Lake Wellington, then he himself got bogged, but short wave listeners, Ian and Allan, who were following, were cunning enough not to get stuck in the mud. Ian and David 3DY won the day's three runs with 11 points, then George 3ZCG was second, with Ian and Terry third. To wind up the day, Peter and Regis 3XLA put on a lovely afternoon tea. Reg 3ZCR was the control station. On the night of the hunt, Reg and George went portable on 2 mhz, halfway between Sale and Bairnsdale with good results, so come on

## Low Drift Crystals FOR AMATEUR BANDS

ACCURACY 0.02% OF STATED FREQUENCY

3.5 Mc. and 7 Mc.

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**MAXWELL HOWDEN**  
15 CLAREMONT CREES,  
CANTERBURY, E.7,  
VICTORIA

## W.I.A. VICTORIAN DIV. ANNUAL STATE CONVENTION

will be held at  
**COLAC**  
on  
**9th and 10th NOVEMBER, '57**

★

Forward Agenda Items to the Hon. Sec., Vic. Div., 191 Queen St., Melbourne, by 21st October.

★

For accommodation—South Western Zone members through Mr. C. A. Cullinan, VK3AXU.

All other zones and metropolitan members through the office, 191 Queen Street, Melbourne.



Fred Holton, of Yarram, is now a holder of an Amateur license. Good luck Fred. Also, Ian 3AAV is now on five bands using an 811 with 100 watts and will be changing QTH shortly to Moe. He will then put up a few beams and towers. During the month, George 3JCG proposes to change his location to Moe, up on the high Cliff put up a good screw in antenna. Contests will have over 200 contacts. We understand that Bert 3BB, Ron 3PR, Graham 3QZ, and David 3DY also had a few contacts. We all wish Graham a very enjoyable trip to the French Pacific Isles.

### WESTERN ZONE

Our Annual Zone Convention will be held in Warracknabeal on Sunday, 29th Sept. We will meet at one of the local hotels for the midday meal, after which will follow the meeting. The afternoon will be taken up with a tx hunt on 80 mhz and a scramble on 40 mhz. Any folk with other high frequency gear are asked to bring it along as everyone will be

Trev. 3ATH has been contacting Chas. GAB on Davis Island regularly on 21 Mc. Herb 3BN, of Yamac, has had more than his share of sickness in his family recently, and we offer him our sympathy on the death of his father. Gordon 3GW, of Rainbow, one of the regulars in our hook-ups, is now getting the parts together preparatory to building a converter for v.h.f.

## QUEENSLAND

We were very pleased and fortunate to have present at our last general meeting our Federal President, Mr. Bill Mitchell, 3UM, B. Very kindly brought the boys up-to-date on quite a few matters, which we all were glad to hear. The meeting was in-the-air. After the usual preliminaries were over the meeting quickly moved to discussions on available disposable gear and the method of distributing it. The subject of the "hot" ball was the fairest, but as the finer points of difference arose concerning the eligibility of Limited Amateurs to ballot for low frequency gear, it was decided to refer the matter to the next Council for a full investigation.

There were some doubts concerning the decision to provide the technical library with some disposals gear recently purchased by tender. It was thought that this would detract from the image of the library as the technical library was in reality more an amenity for the city Amateur. However, as there are no rx's or auxiliary tx's in the technical library, it was considered that this was not a problem. It was pointed out that should 4W1W at some future date be transferred to a new QTH, where possibly the new operator did not possess a good communications rx or a good transmitter, the library would be a valuable facility available, then difficulties would most certainly arise. Also in the event of emergencies it was wise to have two reliable working stations.

Stan also announced at the meeting that his A.O.C.P. Class will commence on Oct. 1. He hopes to cover the entire course in three months and spend a further three months in revision. This will enable candidates to sit for quarterly examinations and make arrangements sufficient for students joining the class during the course. Stan also hopes to have his correspondence course, which I understand has been extremely well organized, under way by next May. This venture is something quite new for Stan and Stan for his own efforts has been sincere, hardworking and given all the co-operation he requires.

An approach has been made to secure other meeting rooms in order to conserve our finances. There are a number of rooms available at the George St. University and although it is not the policy of the University to grant rooms to organisations not allied to it, a spokesman said that our request would quite possibly be favourably received.

Unusual sunspot activity and several disturbances have severely restricted communications in certain areas and signals generally were way down on all bands. As yet, there are only a small number of local operators on the 5 mx information concerning the 5 mx band, particularly as requested by Geo-Physicist (Felix Webster) has not come to hand. However, the new influx of successful limited licensees who, incidentally, are "rearing to go" on 5 mx, will fill the gap in VK4 as far as the Geo-Physicist Year is concerned.

We had quite a gathering at the last general meeting and the boys, thirsting for information really peppered our Federal President, Mr. Bill Mitchell, JUM, with questions.

Bill first gave a general resume of Federal activities and pointed out to us, as indeed we have proved for ourselves, that unity is strength. The reason, Bill said, for the delay in getting the report out was that the report was caused by several factors. First, over sixty type-written pages of foolscap had to be translated from short hand notes. Secondly the report had to be put in a more presentable form for the publishers. All this was done in the spare time of several members and although there was a delay, considerable progress had been made. Bill also stated that an extremely large number of items were discussed and tabulated at the Convention and the delegates found very little time for the social part of the day-long meetings finished around midnight!

It was pointed out by a local member that the last Federal Convention was held at the time when the finances (unless they had been planned before hand) of Divisions generally would be at a low ebb. This was due to the fact that the Convention was held near the beginning of the financial year and subscriptions from members were only just beginning to come in. Consequently, large expenses at the time were not convenient. Bill said in reply that this point, which was quite a problem, would in future be taken into consideration.

Also items of C.D.E.N. were given considerable priority at the Convention and Bill informed the meeting that a plan was under consideration to purchase a large quantity of standardized, This equipment could then be rapidly produced, should the need arise, and thus provide a pool of equipment available for use in any emergency. The plan was approached from many practical angles and at one stage a completely transistorized transmitter was considered. However, as is usual with most things, the more one thinks about it in mind and it was thought that this particular scheme eliminated the huge expense of firstly purchasing the equipment, and secondly, maintaining and modernizing the units as time went by. As things stand, all alterations can be made to the circuits to keep them up to date.

Bill also informed us that the next I.T.U. Conference will be held at Geneva in 1960. It will commence on 1st July and will continue for five months. As there is a strong possibility that the Amateur fraternity may lose some space in the spectrum, it was suggested that United Kingdom representation by the W.I.A. at the meeting should be by Amateur society. This should be made. The cost of sending a delegate would be high, a conservative estimate being £1,500. After serious thought you will agree that this amount (approx. £1 per capita) would indeed be a small price to pay to maintain our privileges we now enjoy. A delegate to this Conference is not a new idea, and for the duration but, for some, two months.

There were also many other items of interest which Bill mentioned and which will be published in due course. However, we on Council particularly were very grateful to Bill for the information which he supplied. A vote of thanks was passed to Bill at the meeting by the VK4 President, Mr. Frank Bond, 4ZM, who expressed the hope that it would not be quite as long before Bill visited us again.

Of interest was the first trial run of the Queensland Amateur C.D.E.N. which took place on Sunday, 19th August. The show started at 8.30 a.m. when an "atom-bomb" bell near the Storey Bridge. Immediately v.h.f. links were established between the A.M. and the HQ. began investigating damage to the city. HQ was established at Cildon Hill and direct communication was established with all local stations. The A.M. was then by radio and had the country network in full swing. Some of the boys in the city nearly "died" from exposure to radiation while trying to recompute the animals which broke loose during the "atomic" trial.

ALL the network proved very informative and Vince Vuj as chairman of the Emergency Committee should feel well satisfied as I'm sure, we all do at the success of this, our first trial run. There are to be other emergency runs, which as we become more experienced, will themselves become more complicated. Other services may possibly be added to the network net to provide assistance in dovetailing resources and extending the hand of co-operation.

Council wishes to thank all those members who participated and stayed the distance. Future meetings of the Emergency Committee will tabulate the results obtained. So be prepared! You may not be informed when the next run is to take place.

## TOWNHILLT

I expect I am like the others in writing these notes, always wishing that some of the boys would help out and pass along some

news, either about what they are hearing working, or their latest pet theory or how they achieved their aims for the moment. The last meeting of the T.A.R.C. was well attended and a prospective Ham from the R.A.A.F. put in an appearance. He hailed from Ballarat but his name slips me for the moment. More about this next month. John KIDD was well to the fore again in breaking new ground with suggestions for exchanging gear. No doubt all boys are now sitting at 4WV and his board of gear accumulated over the years ex dispose.

It is hoped that two associate members will face the barrier for a Z call sign next October, and here everyone is wishing them the best of luck. At last the sound barrier on 144 MHz has been broken and 42AY and 42KX have been heard on the 144 MHz band. The new Charters Towers, but Colin GCE is going to try and pump a signal from Castle Hill, 800 ft high, back to Vern at the Towers. He has to be seen to do it, and he has to be seen before dropping down the range of mountains. Ted 4BJ and Rex 5LR are anxiously awaiting the arrival of disposal transceivers and blaming the slow delivery on our railways. I can take

Visitors to my shack the past fortnight have included Frank SAZ, ex-IAE, Reg Frost, ex-YJIRF of the New Hebrides, who regaled me about the doings there and about the old maestro, YJIAA, Frank Palmer. Plus many of the locals trying to help me along the road with 144 Mc. gear. Allan 4PS on the air the other night testing with Ted 6EJ, Basil 4ZW from Cairns promised me news of their doings but so far no dice.

Bob said he was flying holiday down this way. Passed the shack and did not call in on his way to the Towers where he found it too cold for his liking. He hurriedly left after calling Vern on the land line and went through to Home Hill before returning to Innisfail. Ken 4XD blew in a couple of times and was unlucky to find me at work each time. Better luck next time. Bob MP4BCC, ex-MP2AA, together with VS1FS, ex-SUEB, are looking forward to renew talks with all the VKs they have worked at the old QTH.

## SOUTH AUSTRALIA

The "Members' Display" Night attracted a very large gathering of the clan in VIKS, including visitors from G land, one Joe Brown G3AOE, who is spending some few weeks in this State. Others were Messrs. Rogers,

this State. Others were Messrs. Rogers Weatherley (SQL), Dawson (SKD), Kelly, Simaria, Tidderman, Dugdale, Young (SEU), Collis Luke (SZXY), Thomas, Parham, Joyce, and finally Harry SMY. We always welcome interest like that, particularly when, as we learned later on, that six of those visitors signed on the dotted line and sought membership.

Each member who had gear for display was required to give a short talk on it, why he made it, what it did, and to use Secretary Brian SCA's words, "tell us why it worked." This was handled in varying degrees according to the vocal skill of the displayee, and it was noted that the Junior member SKV, while he may have put Pop in a couple of times, sounded like a mite like a veteran. So look out fellows if he gets on the Mike on one of any time, you can cancel next day's work!

John AIT showed us an R.C. Bridge he had recently wished for. This separate amplifier and power supply, will be a most useful kit-up. A very small and compact diode wavemeter, also splendidly made attracted attention, and a g.d.o. with a range of 100 Kc. to 90 Mc. with a separate 150v. power supply was much admired. Finally, he had an i.f. oscillator for 100 Kc. same being metered for checking and fitted with a dial control, being powered by the g.d.o. power supply.

The judges, Messrs. Nestrom, Archerfield, and Heinrich awarded John the prize for the Test Gear Section.

Malcolm Goodridge had a very nicely made Co-ax V.h.f. Wavemeter to show, having a range of 336 to 360 Mc., using a germanium diode and a 250 microammeter. Claims accuracy to within point one per cent.

Frank R. G. Edmonds gave us a look at his transistorized wienstener cosine multimeter, which a lot would have liked to take home. It costs \$300 microammeter as a base, he can adjust to take readings up to 2,000v.—a very useful piece of gear.

Frank Forgie won a prize with his V.I. Voltmeter, a first class job too, which he made up from circuit obtained from "R. & M." The accuracy of measurement has been checked against a commercial unit and found to be right on the nose.

In the absence of Les SAX, Frank also displayed and described a pre-amp. sent in by Les. One of his famous designs that he

proved so successful in raising signals and lowering noise.

John 51G had a simplified receiver using 6BA6, 6BE6, 6BR7, 6BR8, and with separate a.c. control, on 100, 500, and 1.5. Certainly a departure from gang tuning, but with a vernier control on the osc. claims many advantages over the more complicated "other" method, a cadmium plated chassis of 15g. steel provided a hefty firm base which was completed with plug-in coils.

Remarking the arguments about the SMD modulator for the Type 37 Well. Doc answered them all by bringing a Type 3 and the mod. and amplifier stages up (the dummy load) and demonstrated that it does modulate "upwards", in fact he was asked to tune for "downward" modulation. It did it, and then he found he couldn't do it. Once again simplicity pays off, for a 6BR7, one 6V6 and a 10K c.t. speaker transformer are about all that is in the little gear.

Grammie 5XV took a prize with his v.f. converter which covers the 56, 144 and 288 Mc. bands. One rock, one chain of multipliers do the trick with separate v.f. stages for each band. It would hardly be fair to repeat what he said about the OM, and how he "assisted" the neutralizing process, so we leave that out.

Tom 6TD had a wavermeter made up from 6BZ7, 6BZ7, 6C5, 6K5 mixer, 6J7 audio, and ready to go. He said it gives the best most wanted to know when it could be borrowed.

Laurence 4XN completed the display by showing us the progress on his new tx, v.f. proof to the last detail. A very attractive blue ham-marine finish to panels and chassis, work like a professional look. The v.f. circuitry and layout followed all the things the v.f. Committee have hammered into us for some time. All coupling between stages is inductive, power in osc. and multiplier stages kept low (none higher than 1 to 2 watts), by-passing and shielding of power leads carefully done.

A 6AGT Class one, cathode followed to EF80 multiplier stage, on 80T drive on final frequency, and a 6BZ7 tank at quarter wave, a pair of 6146s in parallel through a pi-coupler to 80T.

The many questions asked re this display indicated the interest shown therein and to the fact that a lot are keen to do the same job. Laurie, of course, received the award for this section.

By and large, a most successful programme which the boys would like repeated.

The formal business concluded the gathering, the most important result of this latter part being acceptance of the following new members: Bill Members—R. C. Washington (182D), R. C. (183D), R. C. Dawson (184D), and C. Luke (185X), with Associates—K. M. Hill, R. C. Bills, M. R. Williams, R. J. Simonds, and R. Burton.

The member who the one "most likely not to be broken into" had his record shattered recently by receiving an unwanted visitor. Guess who? Doc SMD. Fortunately, a noisy entry or attempt attracted the canine watch who let up an alarm so his precious 813 is still intact. What no one on the shack window? Doc.

It is proposed to start up another A.O.C.P. class to follow the present one, and thus keep the flame of the contest burning. The plan is to finish late October an early indication is needed from those intending to enrol to enable the organising to proceed. Let us learn P.C.A. know we have a Norm Corman, and any case register early, it looks like same can be entered, the whole course or a division of subjects.

Bob 70M paid President John and Secretary Brian a visit last month when Institute matters were generally being chewed over.

The R.D. Contest has been and gone again (hope you have all put logs in by now) and from it a few more lessons learned. One of them is that the splendid way most handled their contacts and the few who may not have attained that standard must have learned a lot in the hour.

Congrats to Federal Council for introducing the opening ceremony.

Another R.D. Contest is over and though scoring did not appear to be as high as last year, the bands were pretty crowded. It is surprising the number of calls on the air at this time, who are seldom or never heard during the rest of the year. No doubt the Contest is responsible.

6MNM is active again after about a three-year absence. He brought a tx and after a couple of local QSOs using a whip aerial on the chimney, the radio buzz really bit again and he was soon heard on the junk box and rigging up a 60 ft. centre feed in the garden! If 6AJ goes off the air soon for a short time he will be changing QTH and hopes later he will be heard. He has been running on 30 mc. Meanwhile he has worked YU8RM on 40 c.w. with his QRP rig. In a recent radio programme he was asked how he liked the boronia. Thinking of his recent trip from the Old Dart he said "I'm not sure, how many funnels has it got?" I believe for several points he received sprigs and parcels of boronia. Now he is looking forward to a visit to some country hams where he hopes to sample emu steaks and road salt soup.

August has been noticeable for the way in which South Africans have been worked from VK8 on 80 mc in the very early mornings. 6E, 6CL, 6G, and 6LQ were heard in a round table QSO with signals running up to 38 plus volts on phone. ZEs worked included ZVZ, 6LA, 6AV, 6CD, 6CV, 6OM, 6PM, 6Q, 6R, 6S, 6T, 6U, 6V, 6W, 6X, 6Y, 6Z.

6EJ swung a vee beam, in the direction of Canada and has been working lots of VE and KL's on 30 mc at good strength. 6HU is now on s.b. and is understood will discuss the details of this type of equipment at the September meeting.

6BK was unfortunately on the sick list during R.D. and Jack Tong has now got back again before this appears in print! 6AG has re-built his pre-amp with very pleasing results.

Tu. Sunday morning 6W1 broadcasts on 40 mc are giving better coverage than last year, conditions on that band being better at 0630 than at 0600. 6W1 has been working well on the excellent transmissions and the service he is giving the Division continues to be specially appreciated by country members.

## TASMANIA

### NORTH WESTERN ZONE

How are the mumps? At the time of writing there appears to be a fair number of reports saying that the crop is extensive and prolific. In fact, it is a bit of a nuisance. Never mind Jim, we've got them in the house too.

Assoc. Athol Lockett is apparently getting some practical knowledge in at Devonport by visiting Ted 7EJ. How's that rx Athol? Hope you don't go the same way as Max, our Secretary, can't decide what type to build. Pleased to hear Ted 7EJ on again too, often. We should have R.D. Contests more often, and we might get a few more of the old shackies out. Leon 7TZ has been well lashed out recently to the extent of a new modulation transformer. Should be able to modulate that kilowatt without any trouble now Leon.

Heard Ellis TWA on 40 mc recently, so I guess you have got that home-built Collins T8A working on the air. How's that as well as 15 mX Ellis. How about a write up for "A.R."? A new Gelsco microphone for Chas 7CF helped the percentage of modulation. Let's hear you on 80 mc more often, Chas. You have had that 813 stoked up too by now. That's probably right-stoked up—they take 50 watts to heat them. One of our sports members heard on 30 mc during September. Tiny 7JD portable at Scamander on the east coast. That 4 watts was getting along this far, Tiny, sounds a like the job.

There seems to be a general exodus of VK's lately to VK3. Whilst talking to 2KU one Sunday afternoon, I was asked to see Alan ex-7CF in the shack. Pleased to hear of you Alan. Let's hear you from your own rig sometime. Not much news of tv, this month, but I noticed an advertisement for the sale of a travelling wave aerial. Apparently home made ones are best, Jim.

— . . . —

## PAPUA—NEW GUINEA

The new Secretary is Norm Casey, 6WT, and President is Norm Frank 9FT. The QSL Bureau remains the same. Norm is with the Post & Telegraph Dept. and Frank is with the P.M.G.

The Division is steadily growing and a new corner is Doug 6SB (ex-5SB). Welcome to VK3

Doug and may your stay with us be a happy one.

It was good to hear so many of this Division take part in the R.D. Contest, and though conditions were not the best, many went the full distance and put up a respectable score. Hope to hear you all again in the next R.D. Contest.

"Funny Noises" is making some queer noises as he is packing to go south on leave this time. 6AJ was heard taking a cock's snore with portable the other week. Class 67Z was heard on 1/8/57 working 7 Mc. with a 1T4 osc. and 3V4 final. Very nice signal and hope to hear you more often now Grand. 6AMZ is busy trying to extract 1 kw. out of a pair of 6146s with input of 100w. Should hear Horrie on the air shortly. 35P is back from the bush so we will have more DX to work. You can't have all the DX all the time Reg. A special welcome to 5WG, it's nice to have you back on the air with 600 Mc. Be seeing you around. 6DB doesn't get around much any more since he took up golf. Be-leave he is bogged down at the 19th hole. Is that true Doug?

Carl 5VT is very active, but not on 7 Mc. On Sunday morning; how about it Carl? We would like some DX at that time of day. John 5CT and Les 5EJ are on leave and expected back shortly. The other Rabau boys are very active getting in plenty of DX. Russ 5EJ is back on the air with a 400 Mc. powder club. Write us very easily broken Russ; better come up on phone for a while.

Now that we are in the news again chaps, let's hear you on Sunday mornings so I can make this the best column in A.R.—S. Clark

## HAMADS

1/- per line, minimum 3/-.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Property must be received by 31st of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line. Dealers' advertisements not accepted in the column.

**COMPLETE Station for Sale**, comprising Eddystone 750 Receiver with matching speaker and new 669 "S" Meter. Transmitter p.p. 80Ts on Eddystone rack and panel, v.i.o. control, Modulator by pair EL34s. Also A.W.A. 2" Oscilloscope, A.W.A. 4" Type Wavemeter, Type Mk. II. Transceiver. Type "A" Mk. III. Transceiver modified for relay operation on phone, press-to-talk, 12 volt supply. Write Jim Edwards, "Kallista," Sutton Forest, N.S.W.

**HALLICRAFTER FM, AM, Model S47 Com. Receiver**, 88-108 Mc., B.C., 5-18 Mc. with transformer and Hallicrafter Hi-Fi Spkr. and Cabinet. Offers to 49 Dalgetty Rd., Beaumaris, Vic.

**SELL: Tape Technicorder**, Model UG4, complete mike, tapes, as new, £65. Also Beam Prop. Motor. A. O. Brand, Long Jetty, N.S.W.

**SELL: Type 3 Mk. II. comp. all spares**, book, in-built modulation and spkr. Like new. What offers? H. G. Wohlers, 107 Templeton St., Wangaratta, Vic.

**WANTED: Prop. Pitch Motor** complete with gearbox in good order. Please state condition and price to C. L. Haines, 14 Dandaloo Place, Mt. Gambier, S.A.

**WANTED: Schematic circuit R155A** receiver modifications and Australian substitute valves for R155A and lining up details. B. J. Booth, 229 Hanson Road, Athol Park, South Aust.

**WANTED urgently, MR9 RCU** for RA10FA Receiver. Hope, 78 Battye Ave., Kogarah, N.S.W. LW 4550.

## WESTERN AUSTRALIA

At the Divisional meeting on 26th August a very interesting lecture was given by Cooper, of A.W.A., on the subject of "Commercial Application of T.V."

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3.	14,000 — 14,350	0.5
4.	7,000 — 7,300	0.33
5.	3,500 — 4,000	0.7
6.	1,800 — 2,000	0.25

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